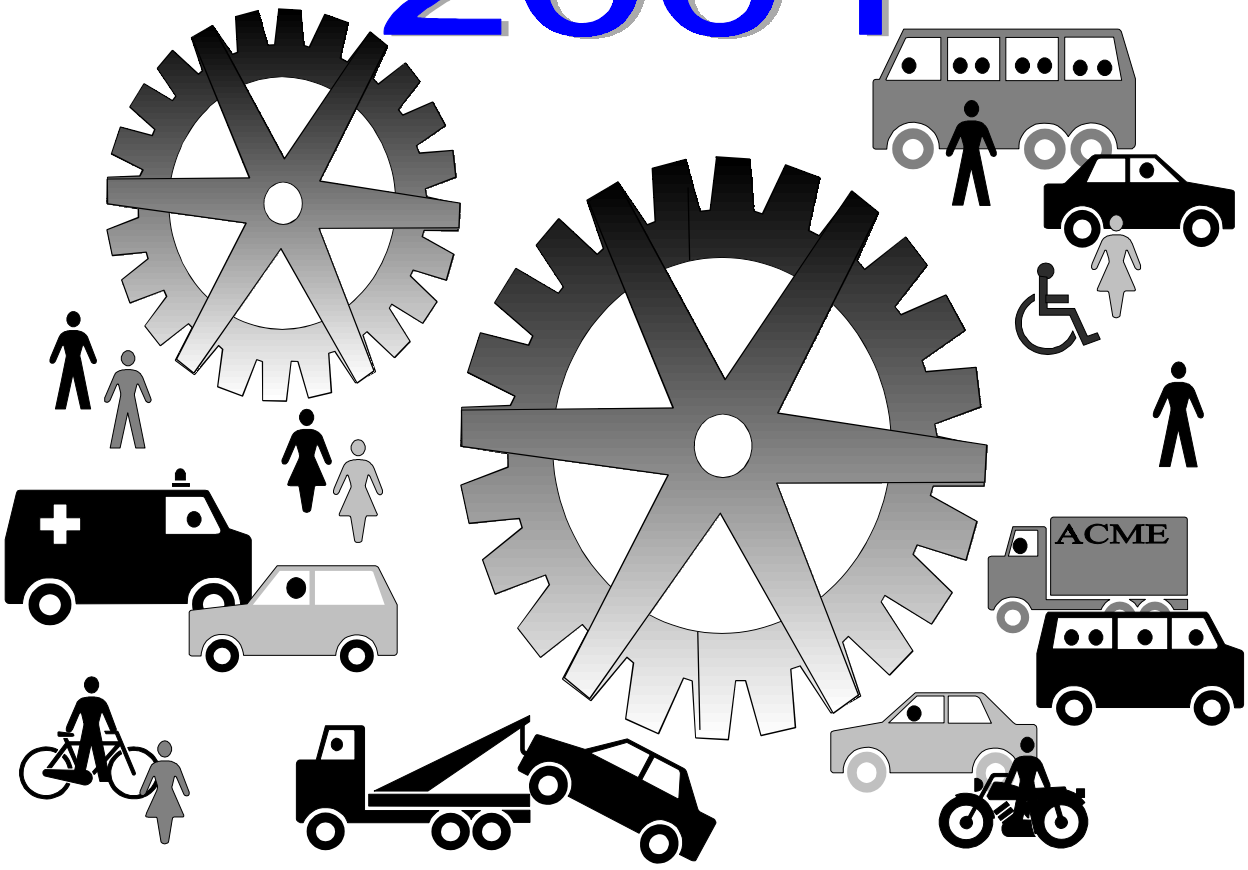
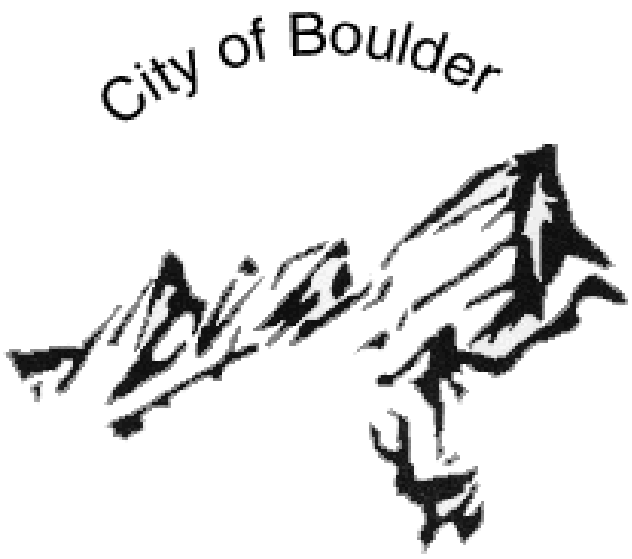
Boulder Valley Employee Survey

2001



Audit and Evaluation Division
City of Boulder
July 2002



Audit & Evaluation Division

The Audit and Evaluation Division (A&E) has as its mission to support the city manager, city council and management by evaluating how the city government can better achieve its objectives and by providing blueprints for service delivery. A&E incorporates functions of internal audits, management audits, measuring performance, and program evaluation. The new division also continues some of the functions historically performed by the Center for Policy and Program Analysis (CPPA), such as production of the biennial Citizen Survey and coordination and dissemination of demographic data.

Boulder Valley Employee Survey

2001

Prepared for the
City of Boulder Transportation Division

by
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Audit and Evaluation Division
City of Boulder
July 2002

Table of Contents

Page

Executive Summary

Background

The Boulder Valley Employee Survey (BVES) is a biennial survey of employees who work in the Boulder Valley. The BVES was designed to tap an important dimension of travel behavior within Boulder, that of employees who work here, but may or may not live in Boulder. The first survey of Boulder Valley employees' transportation habits was conducted in the summer of 1991. Follow-up surveys were implemented in the summers of 1993, 1995, 1997, 1999 and 2001 so that comparisons could be made to determine changes in work commute characteristics.

Employees are chosen for inclusion in the survey in two stages: first, companies are randomly selected from within Boulder Valley, and then employees are randomly selected from within the companies that agree to participate. The data, once collected, were statistically weighted by company size and location to better represent the Boulder Valley work force.

- Of the 674 companies selected for participation in 2001, 337 actually participated, providing a company response rate of 50%. (When the139 selected companies that were no longer in business in Boulder were taken out of the calculation, the company response rate was 62%.)

- Of the approximately 1785 individual surveys distributed, 1148 employees completed questionnaires, resulting in a response rate for individual employees of 79.5%.

- With a sample size of over 1000, the margin of error around the results is approximately 2% per year. Thus, for a difference to be statistically significant between years, there must be a shift of at least 4% (2% around each study year).

Modal Shift among Boulder Valley Employees, 1991 to 2001

Modal Split 2001

- A primary purpose of the Boulder Valley Employee Survey is to determine the modal split of work commute trips by Boulder Valley employees. Almost three-quarters of employees surveyed in 2001 (72%) commuted to work by driving alone in a single occupant vehicle (SOV). The next most common mode of transportation used to get to work was carpooling or vanpooling by 9% of employees, followed by transit (6%) and bicycling (6%), then walking (3%). About 3% of employees worked at home.

Modal Shift of the Work Commute, 1991 to 2001

- In all survey years but 1997 (when the SOV share was 68%), the percent of trips to work made via single-occupancy vehicle has remained almost constant, between 72% and 74% of all commute trips.

- With the exception of transit, other mode choices for the work commute have not changed significantly since 1991, although there have been small shifts away from MOV and bicycle use. Notable is the rise in transit mode share in 2001 to 6%, from 4.5% in 1999 and 1.7% in 1991.

- Among Boulder residents, drive alone trips declined between 1991 and 1997, from 65% to 58%. In the last two survey years, SOV share has remained steady at 61%. Among residents of other cities, SOV share has fluctuated over the study period with a decrease between 1999 and 2001 of 4% (from 85% to 81%).

Modal Shift of Work Commute Miles

Most of this report is focused on modal split defined as the percent of ***trips*** made by certain modes. Modal split can also be defined using the number of ***miles*** traveled.

- When miles rather than trips were used as the definition of modal split, the shift from SOV travel by Boulder Valley employees for the work commute shows a reduction of 2% between 1991 and 2001.

- Between 1991 and 1999 there was a steady increase by Boulder Valley employees in the proportion of miles traveled via transit for the work commute from 1.3% to 5.4% of miles traveled by all modes. However, this proportion decreased slightly to 4.6% in 2001.

Characteristics of the Work Commute

Trip Length and Duration

- The average work commute distance for Boulder Valley employees in 2001 is 13.2 miles. The average commute duration is about 25 minutes. The distance traveled has increased by an average of about 3 miles and the commute time by an average of about 5 minutes since 1991.

- Average vehicular commutes, both automobile and bus, were over 12 miles in 2001 (ranging from 12.4 miles for transit trips to 15.6 miles for MOV trips). Carpool or vanpool trips (MOV) tended to be longer than drive alone trips (SOV), about one to 3 miles longer on average since 1993.

- Average transit trip length gradually increased between 1991 and 1999, from an average of 7.7 miles to 14.3 miles but decreased in 2001 to an average of 12.4 miles. Although the number of miles traveled by transit is lower in 2001 than in 1999, it should be noted that the new 2001 category “multi-mode” records average miles traveled of 14.4. These are trips such as driving to a park and ride and then catching the bus which in the past may have been included in the transit category.

- Non-vehicular commutes are, on average, of much shorter distance than automobile or transit trips, and walking commutes much shorter than bike commutes. The average bike commute was about 4 miles, while the walking commute averaged almost 2 miles in 2001.

- In the 2001 survey, respondents were asked the type of bus they used for their work commute. The largest proportion of Express/Regional bus riders commute more than 11 miles to work. Among those who said they rode the HOP, SKIP, LEAP, JUMP or BOUND (Community Transit Network or CTN) buses, about 30% lived 3-5 miles from work and about 38% said they traveled 11 to 20 miles to work. Among local RTD bus riders, the largest proportion (38%) lived within 2 miles of work.

Start Time

- In 2001, almost two-thirds of the work commutes of Boulder Valley employees started between 7:00 and 9:00 am. Between 1993 to 2001 peak start times have fluctuated. In 2001, as in 1995, the peak commute hour was 7:00 am to 8:00 am. In 1993, 1997 and 1999 the largest proportion of employees (30% to 35%) left home between 8:00 am and 9:00 am.

Trip Linking

- "Trip linking" refers to those trips made by commuters on the way to or from work. The need to make stops is often given as a reason for driving alone. However, errands run on the way to or from work may mean fewer trips made at other times.

- About half of survey participants in all years of the Boulder Valley Employee Study have reported making one or more stops on the way home from work the day prior to completing the survey. The average number of stops made by employees on the way home from work is one.

- In 2001, survey participants were asked about their stops on the way to work. About one-quarter of respondents made at least one stop on their way to work. The average number of stops made by all employees was 0.5.

Vehicle Occupancy

- In all survey years, the average vehicle occupancy for all automobile commutes of Boulder Valley employees has been about 1.1.

- Multiple passenger vehicle commutes (MOVs) had an average of 2.14 persons per vehicle in 2001, the lowest of all survey years. MOV occupancy has been declining since 1997 when the average was 2.33 persons per vehicle. This decrease is similar to trends nationwide.

Parking

One disincentive to vehicle use for the work commute is having to pay to park one's car. In 2001, employees who drive to work were asked what type of parking they usually use and the associated costs of parking.

- Employees who said they drive to work were asked what type of parking they usually use. About three-quarters (75.5%) of the employees who drive to work park in private lots or parking spaces with no charges. However, in the core area, less than half of employees who drive to work (48%) parked without charges in private parking while 87% of employees in the periphery did so.

- City-wide, the proportion of all employees who paid for parking (in either public or private lots or spaces) in 2001 was about 11%, that is, 89% of all employees estimated that they would have no costs for parking in 2001. There were differences, however, depending on where the employee worked. Sixty-nine percent of core area employees compared to 97% of periphery area employees said they paid no costs for parking.

Working at Home and Telecommuting

Single occupancy vehicle use for the work commute can be reduced by eliminating the need for making the trip to work from home.

- The percent of employees who said they worked at home on their survey day increased from about 2% in 1991 to over 3% in 1999. In 2001, the proportion of employees who reported working at home was slightly smaller (2.6%). However, due to the design of this study, in which employees are given the surveys at their work site, the proportion of employees who telecommute is most likely underestimated.

- Since 1995, questions about the frequency of telecommuting have been asked on the study questionnaire. In 2001, 16% of employees reported that they telecommute at least occasionally, up from 11% between 1995 through 1999.

Trips Made During the Work Day

When looking at employee travel patterns, the number of trips made during the work day for business or personal reasons is an important part of the picture. The need to have a vehicle at work for either purpose is cited by employees as a reason for driving to work rather than using other modes. These mid-day trips, if taken by car, add to the congestion in Boulder.

- In all study years, about 65% of Boulder Valley workers made at least one trip during the workday. The average number of trips made during the day per employee is about two. This figure has remained consistent since 1991.

- The mode most often used for trips made during the work day was a single occupancy vehicle. However, the proportion of SOV trips during the work day has decreased from a high of 72% in 1993 to 65% in 2001. Transit use for workday trips has increased from 1% in 1991 to nearly 4% in 2001.

- Some employees are required to run errands during their workday as a part of their job. Over the study period, the proportion of employees who reported having to run work related errands during their work day as been slowly increasing from about 40% in 1991 to about 45% in 2001.

- While more workers are using their personal vehicles for work related errands, the proportion of workers whose employer provides a vehicle to run errands has been on the decline, from 13% in 1993 to about 6% in 2001.

- In 2001, survey respondents who said they ran work-related errands during the workday were also asked how frequently they were required to do so. About 43% of those who ran errands said they did so several times a week and 21% of those who ran errands did so about once a week.

Transit Use

- Increasing transit use is an important part of the effort to reduce traffic congestion caused by SOV travel. A section of the Boulder Valley Employee Survey questionnaire is specifically devoted to questions about bus travel.

- Study participants were asked how many one-way trips they had made by bus, for any purpose, on the previous day. Over the last ten years, the number of bus trips has fluctuated, however, there has been a slight increase from an average of 2.1 trips per person in 1991 to 2.6 trips per person in 2001.

- Respondents who had ridden the bus were asked whether the purpose of these bus trips was work-related or for other reasons. In 2001, the proportion of work-related trips was about two-thirds (67%) compared to between 60% and 80% in previous years.

- In 1999 and 2001, respondents who used transit were asked which type of bus they usually ride for their work commute. Use of regional or express buses has been about the same in both years at about one-quarter of transit users while local bus ridership has been between 73% and 75%.

Eco-Pass Participation

- Since 1997, a survey question on the BVES has asked employees whether or not they have an EcoPass through their company. In 1999 and 2001 about 20% of employees stated that they had some type of EcoPass, an increase from about 14% in 1997.

- Employees with an EcoPass were much more likely to have ridden the bus for their commute than those without an EcoPass. In all three survey years, about 13% of EcoPass holders had taken the bus compared to 2% to 3% of non-EcoPass employees.

Distance from Home to Nearest Bus Stop

- Between 1991 and 1999, 50% to 59% of employees lived within 5 blocks of a bus stop. In 2001, about 50% of respondents said they lived within 5 blocks of a bus stop. The proportion of employees who said they lived 16 or more blocks away from a stop increased to 19% (compared to 12% to 16% in previous survey years).

- In 2001, a larger proportion of transit commute trips than in previous years were made by employees who lived close to a bus stop. (Almost 19% of 2001 transit commuters lived within 5 blocks of a bus stop compared to 13% in 1999 and 11% in 1997).

Use of Community Transit Network Buses (HOP, SKIP, LEAP, JUMP & BOUND)

Since 1997, survey participants have been asked about their use of the Community Transit Network (CTN) buses. At the time of the 1997 survey, the HOP had been in service for about two years and the SKIP had just been introduced to replace the 202 bus. In 1997 and 1999, a survey question was asked about HOP and SKIP ridership. In 2001, after the introduction of the JUMP, LEAP and BOUND, the question was expanded to include these new CTN buses.

- Between 1997 and 2001, SKIP ridership by employees has more than doubled while employee ridership on the HOP has decreased somewhat. *The reduction in HOP ridership may be a result of riders switching to the SKIP, since the routes of the two services coincide along the Broadway corridor between Walnut and Euclid.*

- In 2001, almost 5% of employees said they had ridden the JUMP at least once in the previous month, about 4% of employees rode the LEAP and almost 4% rode the BOUND during the month previous to the survey.

Employees' Child Care Needs

The need to transport children to or from child care is cited by some employees as a reason for choosing to drive rather than using other travel modes. In 2001, three questions were asked regarding child care, the transportation of children and the possible effects of transporting children on choice of travel mode.

- About 20% of the employees said that they are responsible for transportation of their children to school or child care at least some of the time in 2001.

- On the day of the survey, in both 1999 and 2001, about 7% of employees transported children.

- In 2001, about two-thirds of employees who transported children to school or child care said they drove alone to work and 18% said they car-pooled.

- About 60% of those who ever transport children said they would make the same work commute choice with or without their children in 2001. Ten percent said they would be more likely to use modes other than driving if they did not have to transport children.

Other factors influencing mode choice

Many demographic and employment characteristics were measured as a part of the Boulder Valley Employee Survey. The association of these characteristics with travel choices was statistically tested to see which factors most strongly influence mode choice.

- Not surprisingly, the single most important factor affecting whether or not a respondent drove alone to work was whether a car was available for commuting.

- Other important factors included: presence of a transportation coordinator in the company, the number of cars in the employee's household, whether employees made stops on the way home from work, whether the employees were required to run errands during the workday, their place of residence, their gender and whether or not the employee had an Eco Pass.

2001 Boulder Valley Employee Survey Report

Background

The Boulder Valley Employee Survey (BVES) is a biennial survey of employees who work within the Boulder Valley. Study participants provide information about their work commute which provides feedback to City staff and Council members on the effectiveness of City programs aimed at reducing single-occupancy vehicle (SOV) travel.

The BVES was designed to tap an important dimension of travel behavior within Boulder, that of employees who work in Boulder, but may not necessarily live here. The first survey of Boulder Valley employees' transportation habits was conducted in the summer of 1991. Employees were asked questions regarding their work commute, trips made during the workday, bus usage, and socioeconomic information. Follow-up surveys have been implemented every other year since 1991 so that comparisons can be made to determine changes in work commute characteristics.

As in previous years, surveys for the Boulder Valley Employee study were administered using a cluster sampling technique. First, companies were randomly selected within the Valley. These selected employers were contacted by staff of the Audit and Evaluation Division (A & E) and their participation solicited. From these companies, a randomly selected sample of employees was asked to complete the questionnaire. Surveys in English and in Spanish, where needed, were dropped off at the participating companies for distribution. A & E staff members picked up the surveys upon completion. Of the 674 companies selected for participation in 2001, 337 actually participated, providing a company response rate of 50%. When the139 selected companies that were no longer in business in Boulder were taken out of the calculation, the company response rate was 62%.) Of the approximately 1785 individual surveys distributed, 1148 employees completed questionnaires, resulting in a response rate for individual employees of 79.5%. (See Appendix V for more details on the survey methodology.) The data were statistically weighted by company size and location to better represent the Boulder Valley work force.

With a sample size of over 1,000, the margin of error around the results is approximately 2% per year. Thus, for a difference to be statistically significant between years, there must be a change of at least 4% (2% around each study year).

The Boulder Valley Employee Survey is one of two major studies designed to promote understanding of the travel behavior of persons making trips within Boulder Valley. The second, the Boulder Travel Diary Study, is a biennial survey of the travel behavior of Boulder Valley residents.[1] Some comparisons can be made between the two studies, but the study populations are quite different. The Boulder Travel Diary Study only includes residents, regardless of where (or whether) they work. Additionally, Travel Diary respondents provide information about all their trips, not just work-related trips. The Boulder Valley Employee Survey, on the other hand, includes employees who work in Boulder but may live anywhere, and concentrates on the work commute and trips made during the work day. Both of these studies strive to shed light on important pieces of Boulder's transportation picture.[2]

The travel behavior of Boulder Valley employees can be compared to employees' travel behavior nationwide. The data sources used in 2001 include: the Census 2000 Supplementary Survey Summary Tables and the Census Bureau's American Housing Surveys. These data are displayed in Appendix IV.

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[1] Results from the Travel Diary Study are reported in *Modal Shift in the Boulder Valley, 1990 to 2000.*

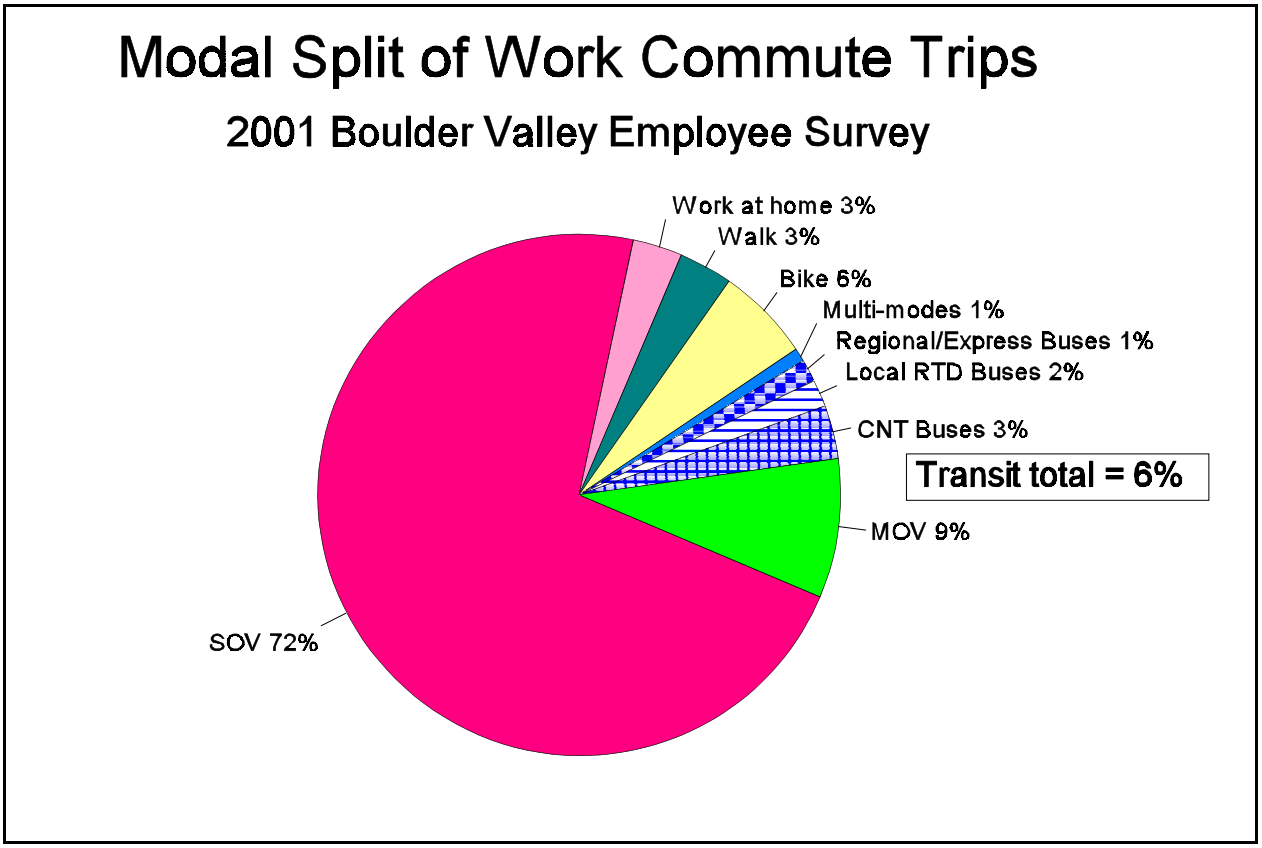
[2] A comparison of the BVES results to those found in the Travel Diary Study is contained in Appendix III.

Modal Shift among Boulder Valley Employees, 1991-2001[3]

Modal Split in 2001

A primary purpose of the Boulder Valley Employee Survey is to determine the modal split of work commute trips by those who are employed within Boulder Valley. ("Modal split" refers to the proportion of trips made by various transportation modes.) All employees were asked "How did you get to work today?"[4] As shown in Figure 1, almost three-quarters of employees surveyed in 2001 (72%) commuted to work by driving alone in a single occupant vehicle (SOV). The next most common mode of transportation used to get to work was carpooling or vanpooling[5] by 9% of employees, followed by transit (6%)[6] and bicycling (6%), then walking (3%). About 3% of employees worked at home on the day of the survey.[7]

Figure 1



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[3] *Throughout this report inferences from the data made by the report's authors are shown in italics.*

[4] Travel behavior is ascertained by asking about commute choices made on the day of the survey in order to cut down on the tendency of respondents to report what they believe to be the more "socially acceptable" responses or what they should or wish they were doing, rather than their actual behavior. If "usual" mode use is inquired about, the estimates of non-vehicular mode use are often inflated compared to actual behavior.

[5] Carpooling and vanpooling can also be referred to as "multiple occupancy vehicles," or MOVs.

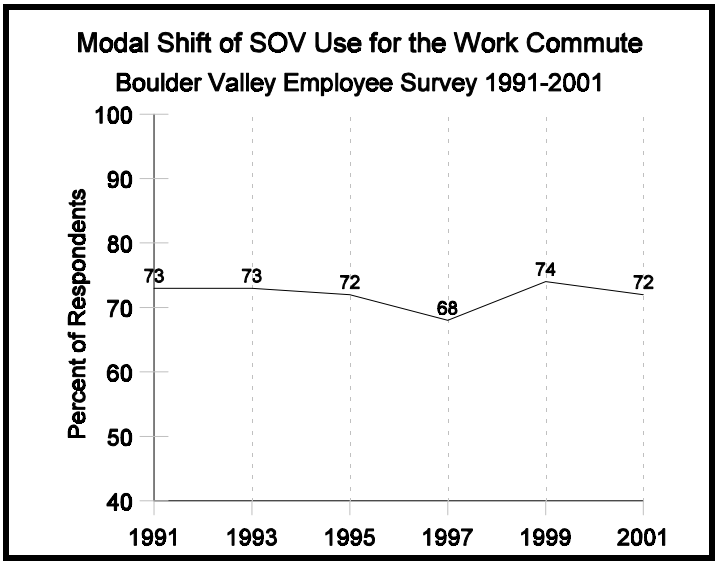
[6] For the first time in 2001, respondents were asked to name the type of transit they used for their work day commute. In previous years, their transit choice was "rode the bus."

[7] Due to the design of this study, in which employees are given the surveys at their work site, the proportion of employees who work at home and may periodically telecommute is most likely underestimated.

Modal Shift of the Work Commute, 1991 to 2001

The City of Boulder has adopted a goal of reducing trips made by single occupancy vehicles (SOVs). Thus, of greater concern than an estimate of the modal split at a single point in time is the observed change in mode choices over time.

Figure 2



In all survey years but 1997, the percent of trips to work made via single-occupancy vehicle has remained almost constant, between 72% and 74% of all commute trips. In 1997 there was a significant decrease (to 68%) in SOV use for the work commute (see Figure 2).

With the exception of transit, other mode choices for the work commute have not changed significantly since 1991, although there have been small shifts away from MOV and bicycle use. Notable is the rise in transit mode share in 2001 to 6% (see Figure 3). Although transit mode share has fluctuated over the last 10 years, from 1.7% to 4.5%, *the increase between 1999 and 2001 may likely be attributed to the additional services as part of the high frequency Community Transit Network buses, the JUMP, LEAP and BOUND* (for the transit breakdown, see Figure 1). It is also likely that a portion of the "multi-mode" share (1.4% of all trips) included transit trips.[8]

Figure 3: Modal Shift of Work Commute Trips
Boulder Valley Employee Survey 1991-2001

Mode	2001	1999	1997	1995	1993	1991	Modal Shift 1991 to 2001
Single-Occupancy Vehicle	71.9%	74.0%	68.1%	71.8%	73.2%	73.0%	-1.1%
Multiple-Occupancy Vehicle	8.9%	8.7%	10.1%	9.1%	9.1%	11.8%	-2.9%
Foot	2.7%	2.8%	5.3%	5.1%	1.9%	3.5%	-0.8%
Bicycle	6.5%	6.5%	9.0%	8.3%	9.2%	8.4%	-1.9%
Transit	6.0%	4.5%	4.4%	3.4%	4.5%	1.7%	+4.3%
Multi-mode (car/bus; bike/bus; 2 buses)	1.4%	N/A	N/A	N/A	N/A	N/A	N/A
Work at Home	2.6%	3.5%	3.1%	2.3%	2.1%	1.6%	+1.9%
TOTAL	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	

[8] The ability to select "multi-mode" as a choice for the day's work commute was added on the 2001 BVES survey.

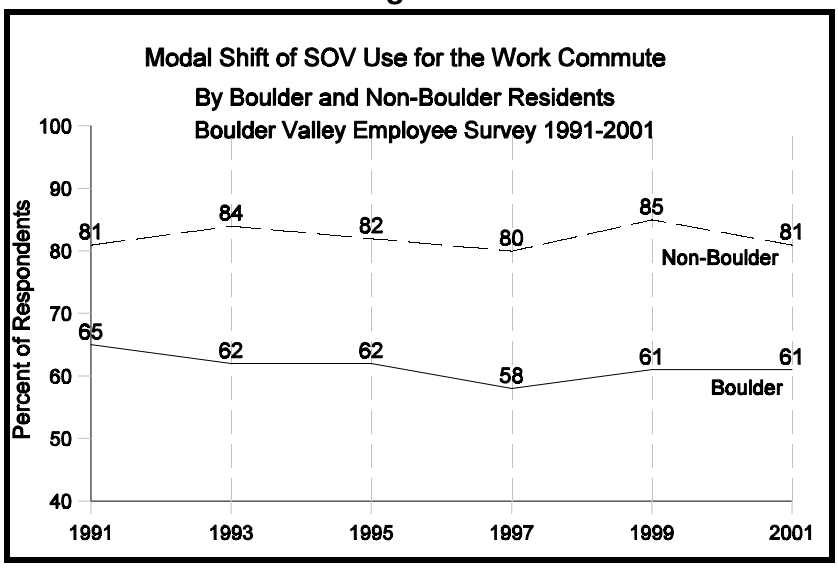
By contrast, results from the 2000 Travel Diary Study showed a decrease of almost 9% between 1990 and 2000 in drive alone commute trips.[9] However, participants in that study were Boulder Valley residents, as opposed to the Boulder Valley Employee Survey in which study participants work in Boulder Valley but may live elsewhere.

National trends, as depicted in the 1994 report *Commuting Alternatives in the United States: Recent Trends and a Look to the Future*, showed significant increases in motor vehicle share (SOV and carpool) of the commute trip from 67% in 1960 to 87% in 1990. Transit share of the commute trip decreased from 6.1% to 4.8% between 1985 and 2001 nationwide.

City of residence was found to impact the modal split of the work commute in the BVES results. Generally, among non-Boulder residents, only about 20% of employees use non-vehicular modes, whereas among Boulder residents, about 40% do not commute by motor vehicle.

Figure 4 shows the trend in SOV choice for the work commute by employees who live in Boulder versus those who live in other cities.[10] Among Boulder residents, drive alone trips declined between 1991 and 1997, from 65% to 58%. In the last two survey years, SOV share for Boulder residents has remained steady at 61%. Among residents of other cities, SOV share has fluctuated over the study period with a decrease between 1999 and 2001 of 4% (from 85% and 81%). As noted in the discussion of modal split on the previous page, 1997 was an unusual year, when SOV use was significantly lower among both Boulder and non-Boulder residents.

Figure 4



9 A comparison of the BVES results with those in the Travel Diary Study is contained in Appendix III.

10 For purposes of comparison with previous years, the 2001 calculations for "Boulder" include those who live within the city limits as well as those who live in unincorporated areas of Boulder County in the Boulder Valley. In 2001, respondents could indicate whether they lived within the city limits of Boulder or in the unincorporated areas of Boulder County, whereas in previous years, survey respondents were asked whether they lived "in or near" Boulder. In 2001, among residents who lived within the city limits of Boulder, the SOV share was lower at 57.5%.

Figure 5 displays modal split between Boulder and non-Boulder residents who work in Boulder for all years of the Boulder Valley Employee Survey. The increase in transit use in 2001 is even more striking in this comparison since the transit mode share for Boulder residents is 9% while for residents of other cities it is only 4%. *Use of local buses, particularly the CTN buses, is likely responsible for the increase among Boulder residents.* For a more detailed discussion of the types of buses used, see the section, "Transit Use" later in this report.

Figure 5: Modal Split by Boulder vs. Non-Boulder Residents
Boulder Valley Employee Survey 1991-2001

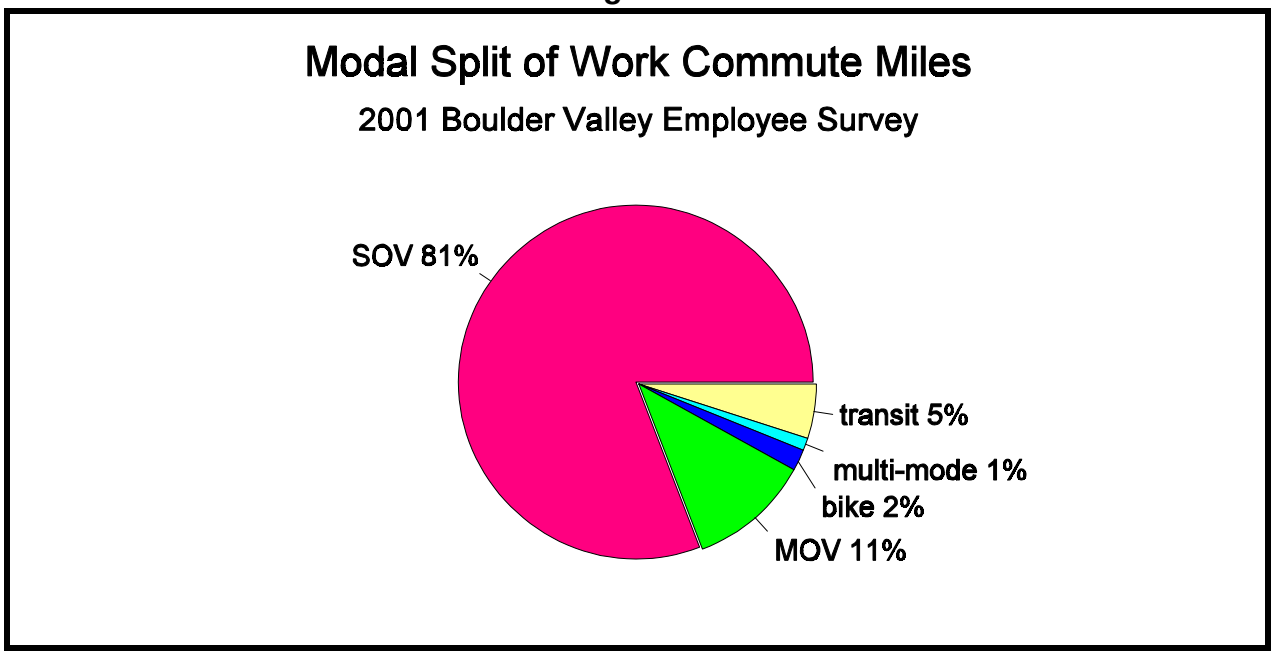
Mode	Boulder*						Other Cities					
	2001	1999	1997	1995	1993	1991	2001	1999	1997	1995	1993	1991
SOV	61%	61%	58%	62%	62%	65%	81%	85%	80%	82%	84%	81%
MOV	5%	9%	8%	7%	7%	8%	11%	9%	13%	12%	11%	15%
Foot	6%	6%	9%	9%	4%	6%	0%	0%	0%	0%	0%	0%
Bicycle	13%	13%	16%	14%	17%	16%	2%	1%	1%	2%	2%	1%
Transit	9%	4%	5%	4%	5%	2%	4%	5%	4%	3%	4%	1%
Multi-mode	1%	N/A	N/A	N/A	N/A	N/A	1%	N/A	N/A	N/A	N/A	N/A
Work at Home	5%	7%	4%	4%	4%	2%	1%	1%	1%	1%	0%	1%
TOTAL	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

*For the purpose of comparison with previous years, the 2001 "Boulder" calculations include city of Boulder residents as well as those in the unincorporated areas of Boulder County within the Boulder Valley. In 2001, among residents who lived within the city limits of Boulder, the SOV share was 57.5%.

Modal Shift of Work Commute Miles

Most of this report is focused on modal split defined as the percent of ***trips*** made by certain modes. Modal split can also be defined using the number of ***miles*** traveled. The modal split of miles traveled in 2001 for the work commute of Boulder Valley employees is displayed in Figure 6.

Figure 6



When miles rather than trips were used as the definition of modal split, the shift from SOV travel by Boulder Valley employees for the work commute shows a reduction of 2% between 1991 and 2001, shown in Figure 7. Between 1991 and 1999 there was a steady increase in the proportion of miles traveled via transit for the work commute by Boulder Valley employees, however, this proportion decreased slightly in 2001. The decrease may be attributable, in part, to the addition of the "multi-mode" option in 2001, since a portion of these trips are by transit.

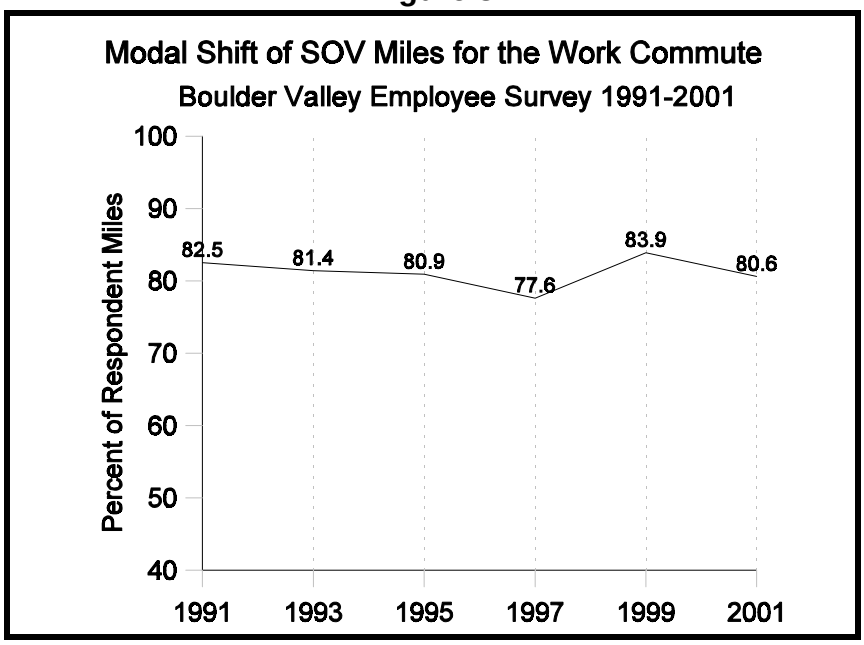
Figure 7: Modal Shift of Miles Traveled for the Work Commute
Boulder Valley Employee Survey 1991-2001

Mode	2001	1999	1997	1995	1993	1991	Modal Shift 1991 to 2001
SOV	80.6%	83.9%	77.6%	80.9%	81.4%	82.5%	-1.9%
MOV	10.9%	8.6%	13.9%	12.1%	10.6%	13.5%	-2.6%
Foot	0.3%	0.3%	0.5%	0.7%	0.2%	0.3%	+1.1%
Bicycle	2.3%	1.6%	2.9%	2.9%	2.9%	2.5%	-0.2%
Multi-mode	1.3%	N/A	N/A	N/A	N/A	N/A	N/A
Transit*	4.6%	5.4%	5.1%	3.3%	4.9%	1.3%	+3.3%
TOTAL	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	

* All 2001 transit types were grouped for the purpose of comparison with previous years.

Figure 8 displays the trend in SOV miles driven for the work commute over the study period of the Boulder Valley Employee Survey. The proportion of SOV miles in 2001 is among the lowest, with the exception of 1997, and is down significantly from 1999.

Figure 8



Characteristics of the Work Commute

Trip Length and Duration

Other characteristics of the work commute were ascertained as a part of the BVES. The average commute distance between home and the place of employment is presented in Figure 9. The average time of the work commute and miles per hour are shown in Figure 10. The average length of employees' commutes, measured both in minutes and miles, has been increasing somewhat over the study period.

The average commute time of about 24.6 minutes for Boulder Valley employees in 2001 is nearly the same as that seen nationally in 2000 (24.3 minutes), though it is slightly higher than the average for the state of Colorado, which, in 2000, was 23.4 minutes (see Figure IV.1, Appendix IV).

Over the study period, the distance employees travel to work by all modes has increased, particularly among those who travel by transit and MOV (See Figure 9). The average length of trips by bus increased about 5 miles between 1991 and 1999. Although the number of miles traveled by transit is lower in 2001 (12.4) than in 1999, it should be noted that the new 2001 category "multi-mode" records average miles traveled of 14.4. In the past these trips may have been included in the transit category.[11]

Average vehicular commutes, both automobile and bus, are generally greater than 10 miles. Non-vehicular commutes are, on average, of much shorter distance than automobile or transit trips, and walking commutes much shorter than bike commutes. The average bike commute in 2001 was about four miles, and the walking commute was about two miles on average.

Figure 9: Mean Distance by Mode
Boulder Valley Employee Survey 1991-2001

Mode	Mean Distance in Miles						Average Change in Miles 1991-2001
	2001	1999	1997	1995	1993	1991	
SOV	14.2	12.6	11.7	12.5	12.7	11.4	+2.8
MOV	15.6	11.6	14.3	15.0	13.4	11.5	+4.1
Walk	1.7	1.1	0.9	1.4	1.2	1.0	+0.7
Bicycle	4.2	2.7	3.4	3.8	3.6	3.0	+1.2
Multi-mode	14.4	N/A	N/A	N/A	N/A	N/A	N/A
Transit*	12.4	14.3	12.7	10.9	12.2	7.7	+4.7
OVERALL	**13.2**	**11.6**	**10.7**	**11.3**	**11.7**	**10.3**	**+2.9**

*In 2001, respondents were asked which form of transit they rode. The mean distances for the CTN buses was 9.3 miles; for local RTD buses, 8.2 miles, and for regional/express buses was 19.8 miles.

[11] Nationally, the average trip length for "motor buses" has been 4 miles in 1994, 1996 and 1998, according to the *2000 National Transportation Statistics* report (Bureau of Transportation Statistics).

The increase in distance traveled for the work commute shown in Figure 9 is reflected in Figure 10, which shows a trend toward longer travel times particularly by vehicles (SOV and MOV) and increasing speed in miles per hour for these two modes. *It may be inferred that the longer distances for the work commute involve more highway driving, hence the higher speeds for SOV and MOV travel.*

As with distance, the time traveled by transit in 2001 is lower than in 1999 *possibly due to the inclusion of the new "multi-mode" category* which records average time traveled of 38.4 minutes. The time in minutes by "multi-mode" in 2001 is greater than the 2001 transit average, *but probably includes some transit travel time.*

Figure 10: Time in Minutes and Miles per Hour of Work Commute by Mode
Boulder Valley Employee Survey 1991-2001

Mode	Time in Minutes						Speed in Miles Per Hour					
	2001	1999	1997	1995	1993	1991	2001	1999	1997	1995	1993	1991
SOV	24.2	22.1	21.2	21.1	21.5	19.7	35.3	33.1	32.4	33.4	33.0	32.5
MOV	27.7	22.9	26.9	25.0	23.6	22.0	33.9	28.5	31.5	35.0	37.4	32.4
Walk	13.6	19.1	14.3	15.8	13.9	11.0	*	*	*	*	*	*
Bicycle	16.8	15.1	15.8	16.9	16.2	14.3	13.5	12.5	14.0	14.6	12.6	13.2
Multi-mode	38.4	N/A	N/A	N/A	N/A	N/A	17.7	N/A	N/A	N/A	N/A	N/A
Transit**	33.9	39.7	33.8	38.2	41.4	38.9	21.3	21.7	17.7	18.4	17.6	11.9
OVERALL	**24.6**	**22.5**	**21.6**	**21.5**	**22.1**	**19.4**	**32.0**	**30.1**	**29.1**	**29.9**	**30.0**	**29.6**

* Speed of the trip was not calculated for walking commutes, as the estimates were deemed highly unreliable because respondents tended to round both the time it takes to make the trip, and the distance of the trip, resulting in very high, but probably inaccurate, estimates of speed of walking trips.
**In 2001, respondents were asked which form of transit they rode. The time in minutes for the CTN buses was 32.5; for local RTD buses, 30.3 and for regional/express buses was 39 minutes.

Since the distance between home and work may influence mode choice, this factor was examined further. Figure 11 displays the percent of people who lived within certain distances from work. Between 1991 and 1999, about one-fifth of respondents lived less than two miles from where they worked. However, in 2001, this proportion dropped to 15%. Correspondingly, there has been an increase in the proportion of employees who live further away from their workplace.

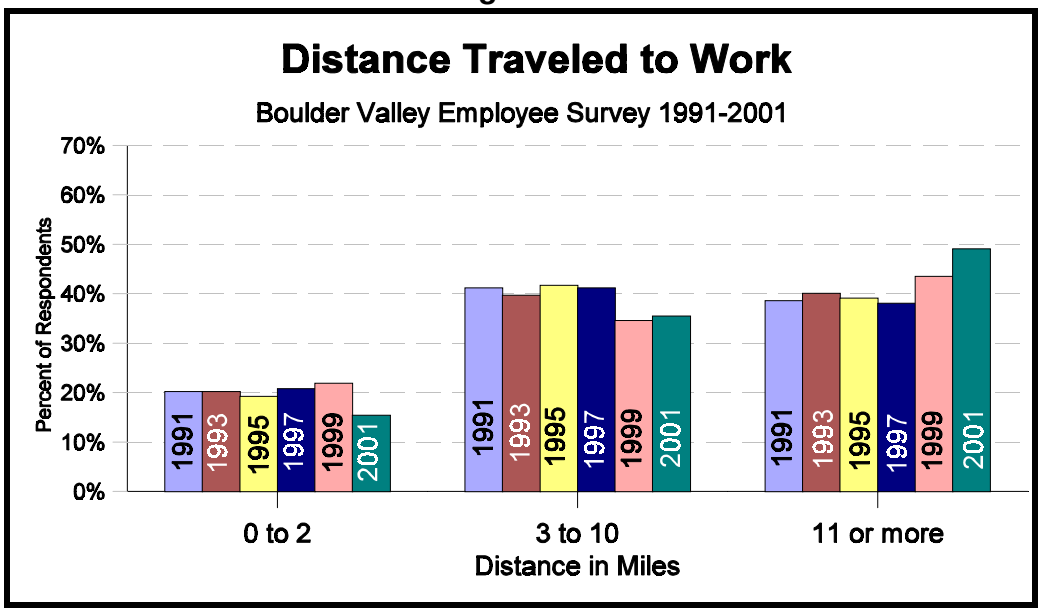
Figure 11: Distance Traveled to Work
Boulder Valley Employee Survey 1991-2001

Miles	Percent of Employees					
	2001	1999	1997	1995	1993	1991
0-2	15.4%	21.9%	20.8%	19.2%	20.2%	20.2%
3-5	16.9%	15.7%	26.9%	23.8%	22.0%	24.1%
6-10	18.6%	18.9%	14.3%	17.9%	17.7%	17.1%
11-20	31.2%	28.8%	25.5%	25.2%	27.7%	27.8%
over 20	17.9%	14.7%	12.6%	13.9%	12.4%	10.8%
TOTAL	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

This trend toward longer work commutes is displayed graphically in Figure 12 on the following page.

Figure 12 reveals the decrease in 2001 in the proportion of employees who live within 2 miles of their work. Decreases also occurred in 1999 and 2001 in the proportion of employees who travel 3 to 10 miles to work, from about 40% prior to 1997 to about 35% in 1999 and 2001. The proportion of employees who traveled more than 11 miles to work rose from about 40% in the years 1991 to 1997 to about 45% in 1999 and almost 50% in 2001.

Figure 12



Similar trends were evident nationwide; between 1985 and 1991 the percent of those who lived five miles or more from their workplace increased from 68% to 72% (see Figure IV.11 in Appendix IV) and increased to 75% in 1999 (Figure IV.5 in Appendix IV).

When modal split was examined by distance from work, the influence of commute distance was readily seen (see Figure 13). In 2001, the proportion of employees who used a motor vehicle (either SOV or MOV) decreased among those who travel 5 miles or less to their work place, and the proportion of transit riders rose among employees who live within 5 miles of their work. Among employees who live 11 or more miles from work, there was an increase in MOV travel in 2001 compared to 1999 and a corresponding decrease in SOV use.

Figure 13: Modal Split of the Work Commute By Distance Traveled to Work (Percents within Distance Categories) Boulder Valley Employee Survey 1991-2001

Modal Split (Percent)	Distance of Work Commute (in miles)																													
	0-2 miles						3-5 miles						6-10 miles						11-20 miles						over 20 miles					
	'01	'99	'97	'95	'93	'91	'01	'99	'97	'95	'93	'91	'01	'99	'97	'95	'93	'91	'01	'99	'97	'95	'93	'91	'01	'99	'97	'95	'93	'91
SOV	50	57	47	46	66	58	69	73	68	76	76	73	78	81	85	82	82	84	81	85	81	81	83	87	82	86	77	82	85	82
MOV	4	10	6	4	7	7	6	9	9	5	8	12	9	8	5	10	7	12	11	8	15	14	14	11	12	8	15	14	10	18
Walk	18	13	26	24	6	16	1	2	2	2	< 1	0	<1	0	<1	0	< 1	0	< 1	0	0	0	0	0	0	0	0	0	0	0
Bike	19	19	18	22	16	16	15	12	16	14	13	12	7	5	8	4	7	3	1	0	1	2	<1	1	0	0	0	0	1	0
Multi-mode	<1	N/A	N/A	N/A	N/A	N/A	2	N/A	N/A	N/A	N/A	N/A	1	N/A	N/A	N/A	N/A	N/A	1	N/A	N/A	N/A	N/A	N/A	2	N/A	N/A	N/A	N/A	N/A
Transit***	9	0**	4	3	4	3	8	2	6	3	2	4	4	6	1	4	3	< 1	5	7	3	3	3	2	4	6	8	4	5	<1
TOTAL*	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

* Totals may not add up to 100 due to rounding.
** Note: Transit riders who rode for a distance under 2 miles (on the HOP or SKIP, for example) may not have recorded the distance they traveled, accounting for the 0 in this calculation.
***For the purpose of comparison with previous years, all 2001 transit modes have been combined. See Figure 13a below for a comparison of 2001 transit modes.

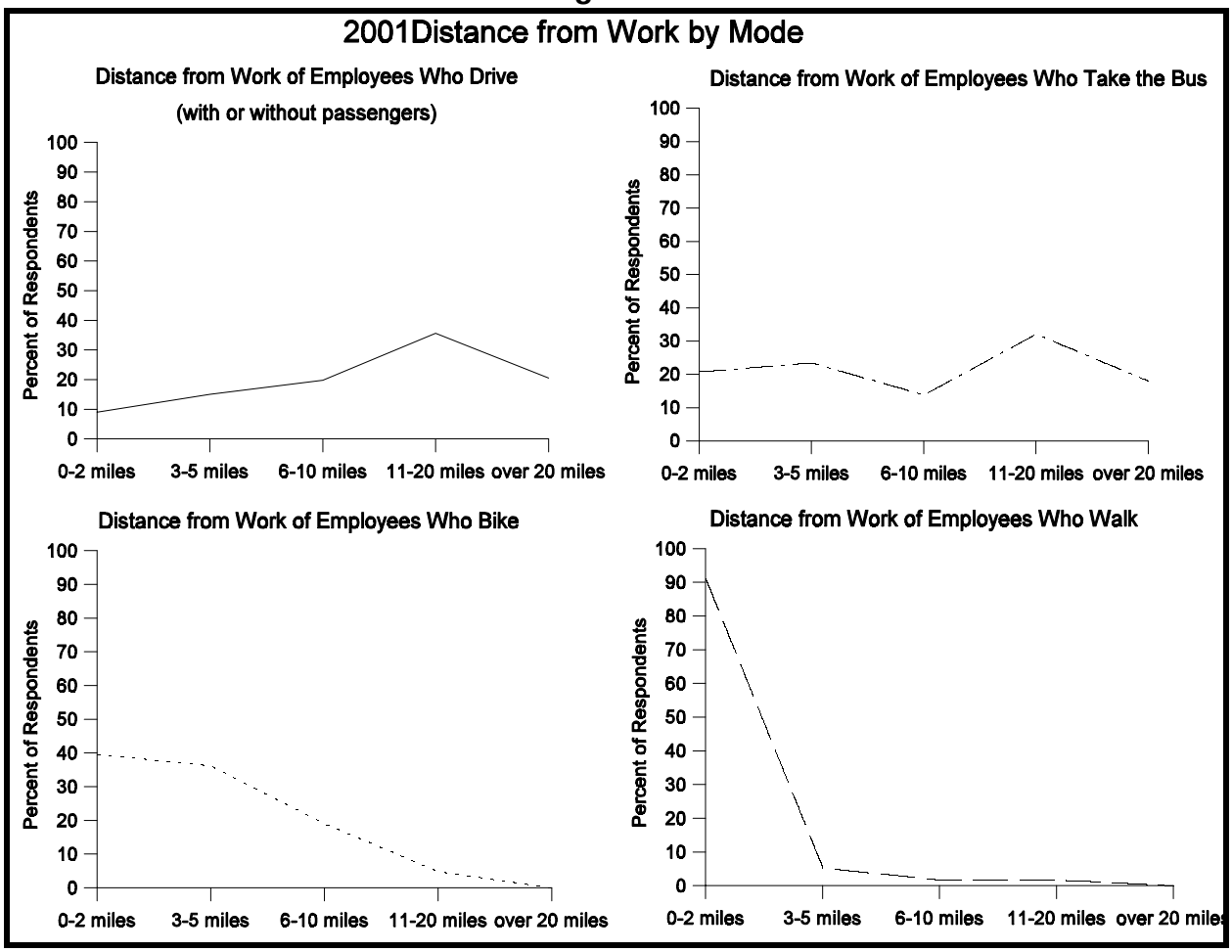
Figure 13a displays the distance of transit riders' work commutes by type of bus in 2001. Among those whose trip was 2 miles or less, a greater proportion (6.2%) said they rode local RTD buses than Community Transit Network buses (2.4%). Among riders who said their commute was 3 to 5 miles, the proportion of local RTD ridership was about the same as the proportion of riders who used the HOP, SKIP, JUMP, LEAP, or BOUND (3.5% and 4% respectively).

Figure 13a: Modal Split of the Work Commute Via Transit Types By Distance Traveled to Work (Percents within Distance Categories) Boulder Valley Employee Survey 2001 only

Modal Split of 2001 Transit Trips (% of all modes)	Distance of Work Commute (in miles)				
	0-2	3-5	6-10	11-20	over 20
HOP/SKIP/JUMP/LEAP/BOUND (CTN)	2.4	4.0	1.3	2.7	1.1
Local RTD	6.2	3.5	1.8	0.9	1.3
Regional Express Buses	0.0	0.3	1.0	1.5	1.6
All Transit	8.6	7.8	4.1	5.1	4.0

The following graphs display work commute distance by travel mode, to determine if there are "thresholds" of distance that are reasonable for certain types of transportation choices. In 2001, employees who drove to work were more likely to live between 11 and 20 miles from work (35.5%); a smaller percentage (20.5%) lived more than 20 miles away. About one-quarter (24%) of those who drove to work lived within 5 miles of their work. Of those who walked to work, more than 90%

Figure 14

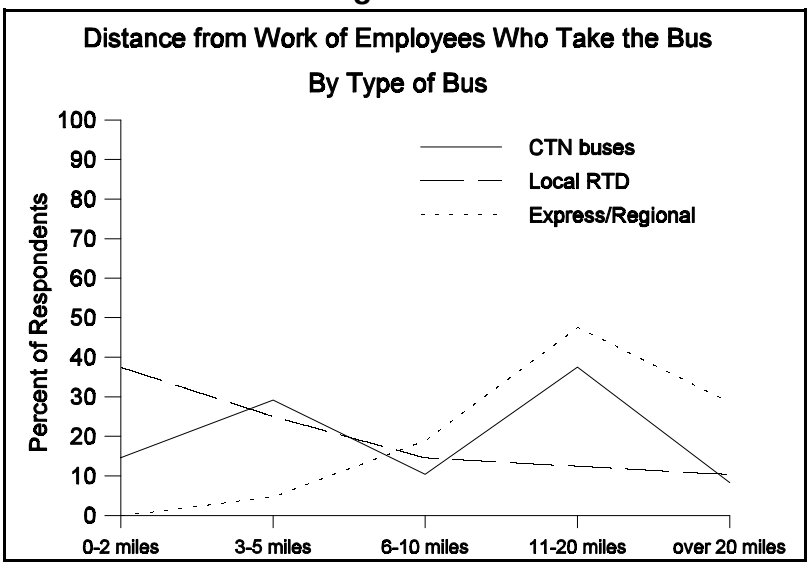


lived within 2 miles of work. Among those who biked, more than three-quarters (76%) lived within 5 miles of work, and none lived more than 20 miles away. Of those who commuted via transit less than half (42%) lived more than 11 miles away from work. Almost the same proportion of bus riders in 2001 (44%) commuted 5 miles or less to work on average.

Because respondents in the 2001 survey were asked the type of bus they used for their work commute, Figure 14a breaks down distance to work in this manner. As might be expected, the largest proportion of Express/Regional bus riders commute more than 11 miles to work. Among those who said they rode the HOP, SKIP, LEAP, JUMP or BOUND (CTN) buses, about 30% lived 3-5 miles from work and about 38% said they traveled 11 to 20 miles to work. Among local RTD bus riders, the largest proportion (38%) lived within 2 miles of work.

Both Figure 13a (previous page) and Figure 14a seem to indicate that those who ride the shortest distances use local RTD rather than CTN buses. *This seems counterintuitive, given that the routes and frequencies of the CTN buses offer a higher level of service, and that actual CTN rider counts are more than twice those of local RTD routes . This may be a reporting issue if bus riders are not able to correctly identify the CTN buses.*

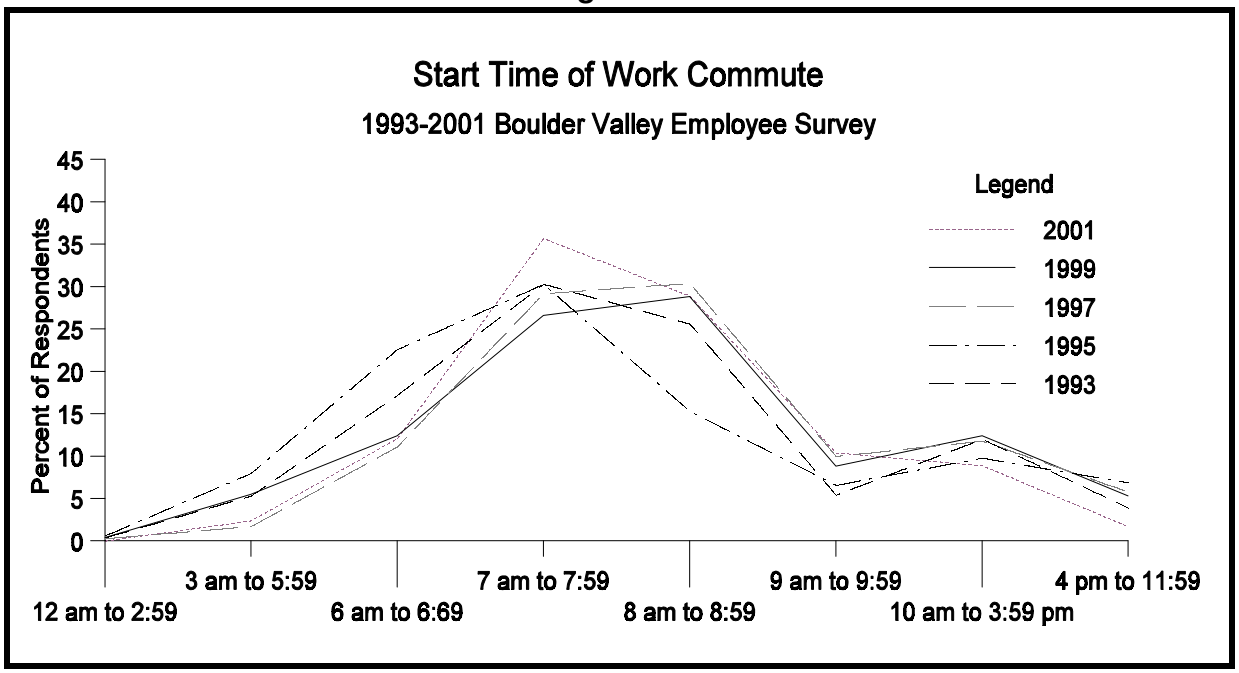
Figure 14a



Start Time

In 2001, almost two-thirds (65%) of the work commutes of Boulder Valley employees started between 7:00 and 9:00 am. Over the period from 1993 to 2001 peak start times have fluctuated (see Figure 15). In 1993, 1997 and 1999 the largest proportion of employees left home between 8:00 am and 9:00 am. In 2001, as in 1995, the peak commute hour was 7:00 am to 8:00 am. *The 2001 shift toward an earlier time may reflect the longer commute times/distances reported earlier.*

Figure 15



Trip Linking

"Trip linking" refers to a series of trips made by commuters on the way to or from work. The need to make stops is often given as a reason for driving alone. However, there is a positive side to trip linking; errands run on the way to or from work may reduce the need for other separate trips and are usually made with a warm vehicle, thus having a less negative effect on air quality.

Over the study period, the average number of stops made by employees on the way home from work has been about one with about half of employees reporting that they made at least one stop. A slightly larger proportion of employees in 2001 than in previous years made no stops on the way home from work (see Figure 16).

Figure 16: Number of Stops Made on Way Home from Work
Boulder Valley Employee Survey 1991-2001

Number of Stops Made on the Way Home from Work	Percent of Employees					
	2001	1999	1997	1995	1993	1991
0 (straight home from work)	55.1	46.3	50.2	46.2	50.0	47.8
1 stop	25.5	26.8	25.7	24.2	26.5	25.2
2 stops	11.6	16.0	12.5	16.0	13.3	13.7
3 stops	3.9	6.2	7.2	7.8	6.7	8.3
4 stops	1.1	2.1	2.0	1.9	2.0	1.3
5 + stops	2.8	2.6	2.4	4.0	1.5	3.6
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
MEAN NUMBER OF STOPS	.90	1.10	0.98	1.28	0.89	1.08

In 2001, respondents were also asked about the number of stops they made on their way to work. About one-quarter (24%) of employees reported making at least one or more stops on the way to work.

Figure 17: Number of Stops Made on the Way to Work
Boulder Valley Employee Survey 2001

Number of Stops Made on the Way to Work	Percent of Employees 2001
0 (straight home from work)	76.2
1 stop	15.1
2 stops	3.8
3 stops	1.9
4 stops	0.9
5 + stops	2.1
TOTAL	100.0
MEAN NUMBER OF STOPS	.54

Nationwide, a 2000 survey reports that about 25% of commuters make at least one stop on the way to work and 33% made at least one stop on the homeward commute.[12]

[12] *Moving Ahead: The American Public Speaks on Roadways and Transportation in Communities*, Federal Highway Administration (U.S. Department of Transportation), 2000.

Vehicle Occupancy

Figure 18 shows that an increasing percentage of employees who use a vehicle to get to work drive alone. In 1991, SOV use was about 87%; this proportion rose to about 91% in 1999 and 2001. A proportionally smaller percent of vehicle users are carpooling. Nationally the trend is similar. Census data indicate that, across the nation in 1980 about 20% of commute trips were by carpooling; in 1990 the proportion was 13% (Figure IV.7, Appendix IV), and in 2000, 10% of commuters carpooled (Figure IV.2, Appendix IV), about the same proportion as among Boulder employees.

Figure 18: Vehicle Occupancy
Boulder Valley Employee Survey 1991-1999

Number of Persons in Vehicles	All Automobile Commutes Percent of Respondents					
	2001	**1999**	**1997**	**1995**	**1993**	**1991**
1 person	90.6	91.1	87.2	86.1	88.5	86.5
2 persons	8.1	7.6	8.9	9.5	9.9	12.2
3 persons	0.9	0.7	3.6	1.1	0.9	0.9
4 persons or more	0.3	0.6	0.3	0.3	0.7	0.5
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
MEAN VEHICLE OCCUPANCY (ALL CARS)	1.14	1.13	1.17	1.13	1.14	1.16
MEAN VEHICLE OCCUPANCY (CARS WITH MORE THAN ONE PERSON)	2.14	2.23	2.33	2.16	2.24	2.15

According to the author of the report, *Commuting Alternatives in the United States: Recent Trends and a Look to the Future*, there are several factors which have contributed to the decline in carpooling. These are: the decline in the number of persons per household, the increase in the number of workers per household, the decline in the real price of gasoline, the increase in education and the aging of the population over the last twenty years. *These are factors which probably apply to Boulder as well as to the nation as a whole.*

Parking

Type of Parking

One disincentive to vehicle use for the work commute is having to pay to park one's car. In 2001, employees who drive to work were asked what type of parking they usually use. As Figure 19 shows, about three-quarters (75.5%) of the employees who drive to work park in private lots or parking spaces with no charges. As might be expected, there are differences in the type of parking employees use based on the location of their place of employment. In the core area,[13] less than half of employees (48%) parked without charges in private parking while 87% of employees in the periphery did so.

Figure 19: Type of Parking Space by Those Who Drive
Boulder Valley Employee Survey 2001

Type of Parking Space	Percent of All Employees	Percent of Employees by Work Location	
		Core/PO Box	Periphery
Public lot or structure with a permit	13.8	25.1	9.1
Private lot or parking space, no charge	75.5	47.9	86.8
Private lot with charges	3.5	11.0	0.5
Street with meter	0.9	2.4	0.3
Residential street, no meter	6.3	13.6	3.3
TOTAL	100.0	100.0	100.0

Estimated Parking Cost

When asked to estimate how much they would spend in 2001 on parking for their work commute, the differences between employees who work in the periphery of the city and those who work in the core is again evident. Almost all (97%) of periphery area employees anticipate no charges for parking while around two-thirds (69%) of core area employees estimate no parking costs. About 20% of core area employees estimate that they will pay $100 or more for parking in 2001.

Figure 20: Estimated Annual Cost of Parking
Boulder Valley Employee Survey 2001

Estimated Cost of Parking	Percent of All Employees	Percent of Employees by Work Location	
		Core/PO Box	Periphery
No cost	88.5	68.6	96.5
$1 to $25	2.7	4.7	1.9
$26 to $50	0.5	1.5	0.2
$51 to $100	1.4	4.4	0.2
$101 to $500	5.3	16.1	0.9
$500 to $1200	1.7	4.7	0.4
TOTAL	100.0	100.0	100.0

[13] The core area is defined as the area within the north/south boundaries of Iris and Baseline Avenues, and the east/west boundaries of 28th and 9th Streets. The area outside these boundaries, within the Boulder Valley, is termed the "periphery" for the purposes of this survey.

Working at Home and Telecommuting

Single occupancy vehicle use for the work commute can be reduced by eliminating the need for making the trip to work from home. Some people work out of their home, either because they run a business from their home, or because they can telecommute or telework[14] on at least an occasional basis.

Figure 21 below exhibits the percent of respondents who reported that they worked at home, when asked how they got to work that day. Due to the design of this study, in which employees are given the surveys at their work site, the proportion of employees who work at home and may periodically telecommute is most likely underestimated.

The percent of those who said they worked at home on the day of the survey is small, though it increased from about 2% in 1991 to over 3% in 1999. In 2001, however, the proportion of employees who reported working at home was slightly smaller (2.6%).

Figure 21: Percent of Employees Who Work at Home
Boulder Valley Employee Survey 1991-2001

Percent of Employees Who Report They Work at Home	2001	1999	1997	1995	1993	1991
	2.6%	3.5%	3.0%	1.8%	2.1%	1.6%

According to the 2000 Census, the percent of employees working from their home nationally was 3.2% (3.0% in 1990), and in Colorado 4.2% of workers worked at home (see Figure IV.1, Appendix IV). The Census Bureau's *American Housing Survey for the United States: 1999* reported that 2.8% of workers worked at home, however, a regional breakdown showed the proportion of at-home workers in the Western U.S. was 3.2% in 1999 (see Appendix IV).

[14] Telecommuting (teleworking) is defined as substituting telecommunications such as computer, modem or phone for work-related travel. In 2001, the survey definition of "teleworking" specified "only full days at home when you did not travel to your work place."

Beginning in 1995, questions about the telecommuting patterns of employees were added to the study questionnaire. In 1995 through 1999, about 11% of employees surveyed reported that they telecommute at least occasionally. In 2001, the proportion was up to 16%. The proportion of employees who telecommute once a week or more was almost 6% in 2001, compared to 3.5% in 1999 and about 5% in the previous study years.

Figure 22: Telecommuting Patterns of Employees
Boulder Valley Employee Survey 1995-2001

How often employees telecommute	Percent of Employees			
	2001*	1999	1997	1995
never telecommutes	84.1%	88.5%	89.3%	88.5%
telecommutes less than once a month	5.1%	5.8%	3.0%	3.9%
telecommutes 1 to 3 days a month	5.0%	2.8%	2.8%	3.0%
telecommutes once a week	1.9%	0.9%	1.3%	1.2%
telecommutes twice a week	2.1%	1.0%	1.3%	0.8%
telecommutes 3 days a week or more	1.7%	1.6%	2.2%	2.6%
TOTAL	100.0%	100.0%	100.0%	100.0%

*In 2001, the question about telecommuting was limited to "teleworking" in the last 3 months. In previous years, the surveys asked how often respondents ever telecommute.

Trips Made During the Work Day

When looking at employee travel patterns, the number of trips made during the work day for business or personal reasons is an important part of the picture. The need to have a vehicle at work for either purpose may be cited by employees as a reason for driving to work rather than using other travel modes. These trips, if taken by car, can add to traffic congestion in Boulder.

In all study years, about 65% of Boulder Valley workers made at least one trip during the workday. Figure 23 shows that about 35% of workers made no workday trips. The average number of trips made during the day per employee is about two. Since more than one-third of employees, in all study years, made no trips during the workday, the number of trips by those who did make trips was also calculated. This average has remained at about 3 trips per person.

Figure 23: Number of Trips Made During the Work Day
Boulder Valley Employee Survey 1991-2001

Number of One-Way Trips	Percent of Employees					
	2001	1999	1997	1995	1993	1991
0	34.9%	35.7%	35.6%	36.2%	35.0%	36.8%
1-2	40.0%	36.9%	39.0%	37.3%	38.1%	36.2%
3-4	16.0%	17.0%	15.2%	16.5%	17.4%	18.3%
5+	9.1%	10.4%	10.1%	10.0%	9.5%	8.7%
TOTAL	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
MEAN NUMBER OF TRIPS BY ALL EMPLOYEES	1.95	2.03	1.99	2.14	2.19	2.06
MEAN NUMBER OF TRIPS BY THOSE MAKING AT LEAST ONE TRIP	3.05	3.16	3.09	3.36	3.36	3.31

The mode most often used for the trips made during the work day was a single-occupancy vehicle (see Figure 24). Over the last ten years, the proportion of trips made by SOV has declined slightly while the proportion of transit and walking trips during the workday has increased.

Figure 24: Modes Used for Trips Made During the Work Day
Boulder Valley Employee Survey 1991-2001

Mode	Percent of Employees						Modal Shift of Workday Trips 1991 to 2001
	2001	1999	1997	1995	1993	1991	
SOV	64.9%	69.9%	65.9%	65.1%	71.8%	68.2%	-3.3%
MOV	17.1%	16.7%	14.2%	18.4%	15.0%	18.8%	-1.7%
Walk	10.7%	6.6%	11.3%	9.3%	6.5%	6.6%	+4.1%
Bicycle	3.2%	3.7%	6.9%	6.6%	4.8%	5.3%	-2.1%
Multi-mode	0.3%	N/A	N/A	N/A	N/A	N/A	N/A
Transit	3.8%	2.7%	1.2%	0.6%	1.5%	1.2%	+2.6%
TOTAL		100.0%	100.0%	100.0%	100.0%	100.0%	

Figure 25 below displays the most common modal choice for workday trips by employees who live in Boulder versus those who do not. Boulder residents were much less likely than residents of other cities to drive alone for their workday trips (59% among Boulder residents in 2001 compared to 71% among non-residents). Mode share changes in workday trips, when analyzed by resident versus non- resident employees, mirror what was observed for work commute trips.

Figure 25: Primary Mode of Trips Made During the Work Day by Residence
Boulder Valley Employee Survey 1991-2001

Mode	Percent of Employees											
	Boulder*						Other Cities					
	2001	1999	1997	1995	1993	1991	2001	1999	1997	1995	1993	1991
SOV	59	65	59	61	66	66	71	75	75	69	78	71
MOV	16	16	14	12	14	14	18	18	14	25	16	24
Walk	15	9	13	14	9	8	6	4	10	4	4	4
Bicycle	5	6	11	11	8	10	1	2	1	2	1	5
Multi-mode	1	N/A	N/A	N/A	N/A	N/A	0	N/A	N/A	N/A	N/A	N/A
Transit	4	4	2	1	3	2	4	1	<1	<1	1	1
TOTAL	100	100	100	100	100	100	100	100	100	100	100	100

*For the purpose of comparison with previous years, the 2001 "Boulder" calculations include city of Boulder residents as well as those in the unincorporated areas of Boulder County.

Some employees are required to run errands during their workday as a part of their job. Over the study period, the proportion of employees who reported having to run errands during their work day has slowly increased from about 40% in 1991 to about 45% in 2001. Also, among those who run errands the proportion who must provide their own vehicle has increased slightly with a proportional decrease in employer-provided vehicles.

Figure 26: Vehicle Requirements of Employees
Boulder Valley Employee Survey 1991-2001

Vehicle Requirements	Percent of Respondents					
	2001	1999	1997	1995	1993	1991
Does Not Run Errands	55.2%	55.9%	58.6%	57.9%	62.8%	61.2%
Runs Errands, Employee Must Provide Own Vehicle	33.8%	35.3%	34.2%	32.6%	24.3%	29.7%
Runs Errands, Employer Provides Vehicle	5.8%	6.6%	7.1%	9.5%	12.9%	9.1%
Runs Errands, Employer Provides Bicycle	0.2%	0.5%	N/A*	N/A*	N/A*	N/A*
Other (includes use of alt modes, etc.)	5.0%	1.7%	N/A*	N/A*	N/A*	N/A*
TOTAL	200195.0%	100.0%	100.0%	100.0%	100.0%	100.0%

*Note: The option to give these answers were not available in survey years 1991 through 1997.

Among employees who drove alone to work, the proportion who did not run errands has fluctuated between 65% and 74% over the study period. Among those who must run work-related errands in an employer-provided vehicle, the proportion who drive alone dropped from about 85% to 67% between 1991 and 1999, but rose to 78% in 2001, *suggesting that in the current year, provision of a vehicle by the employer had a smaller influence on SOV use for the work commute*.

Figure 27: Modal Split by Vehicle Requirements of the Employees
Boulder Valley Employee Survey 1991-2001

Vehicle Requirements	Percent using SOVs					
	2001	1999	1997	1995	1993	1991
Does Not Run Errands	66.3%	73.7%	65.4%	69.6%	74.4%	68.8%
Runs Errands, Employee Must Provide Own Vehicle	82.8%	78.8%	84.1%	86.3%	83.2%	83.4%
Runs Errands, Employer Provides Vehicle	78.1%	67.3%	68.1%	66.5%	73.4%	84.5%

In 2001, survey respondents who said they ran errands during the workday were also asked how frequently they were required to do so. Almost half (43%) of those who ran errands did so several times a week and another 21% said they ran errands about once a week.

Figure 28: Frequency of Errands by
Those Required to Run Errands
Boulder Valley Employee Survey 2001

Frequency of Errands	Percent of Employees Who Run Errands
Several times a week	42.8
Once a week	20.9
Once every two weeks	14.1
Once a month	12.8
Less than once a month	6.1
Other	3.3
TOTAL	100.0

Among those who must run errands, most used a motor vehicle to do so (either their own or one provided by their employer). About two-thirds of those who use a motor vehicle to run errands do so once a week or more (see Figure 29). A majority (60%) of those who use other modes (bicycles, bus or walking) to run errands also did so once a week or more.

Figure 29: Mode Used by Those Required to Run Errands by Frequency of Errands Run
Boulder Valley Employee Survey 2001

Frequency of Errands	Percent of Employees Who Run Errands	
	Motor Vehicle	Other Mode
Once a week or more	66.7	60.0
Less than once a week to once a month	27.7	25.7
Less than once a month	5.6	14.3
TOTAL	100.0	100.0

Transit Use

Increasing transit use is an important part of the effort to reduce traffic congestion caused by SOV travel. A section of the Boulder Valley Employee Survey questionnaire is specifically devoted to questions about bus travel.

Study participants were asked how many, if any, one-way trips they had made by bus on the previous day.[15] The number of bus trips, over the last ten years, has fluctuated but shown a slight increase from an average of 2.1 trips per person in 1991 to 2.6 trips per person in 2001 (see Figure 30).

Figure 30: Number of Bus Trips Made During the Previous Day
Boulder Valley Employee Survey 1991-2001

Number of Bus Trips	Percent of Employees					
	2001	1999	1997	1995	1993	1991
0	90.5	91.9	92.7	94.3	93.3	96.6
1	2.0	2.5	2.3	1.5	2.1	1.8
2	4.8	3.8	4.3	3.5	2.6	0.9
3	0.7	1.2	0.1	0.1	0.1	0.1
4	1.2	0.3	0.5	0.4	0.6	0.4
5+	0.8	0.3	0.1	0.2	1.3	0.3
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
MEAN NUMBER OF TRIPS PER PERSON RIDING THE BUS	2.61 trips	2.34 trips	1.91 trips	2.12 trips	3.92 trips	2.08 trips

Respondents who had ridden the bus were asked whether the purpose of these bus trips was work-related or for other reasons. In 2001, the proportion of work-related trips was about two-thirds (67%) compared to between 60% and 80% in previous years.

Figure 31: Transit Trips by Purpose
Boulder Valley Employee Survey 1991-2001

Trip Purpose	Percent of Transit Trips					
	2001	1999	1997	1995	1993	1991
Work Related	67	60	80	68	78	80
Non-Work Related	33	40	20	33	22	20
TOTAL	100	100	100	100	100	100

[15] As with the commute to work, transit use was ascertained by inquiring about the previous day in order to cut down on the tendency of respondents to report what they believe to be the more "socially acceptable" responses or what they should or wish they were doing, rather than their actual behavior.

In 1999 and 2001, respondents who used transit were asked which type of bus they usually ride for their work commute. In both survey years, about 20% of employees answered this question. Because the bus types were expanded in the 2001 survey, results are not entirely comparable (see Figure 32). However, use of regional or express buses has remained at about one-quarter of transit users. Similarly, if the 2001 options -- CTN routes, local RTD and County service routes -- are aggregated, local bus ridership in these two years is comparable: 73% in 2001 and 75% in 1999.

Figure 32: Type of Bus Usually Used for Work Commute
Boulder Valley Employee Survey 1999-2001

When you ride the bus to work, do you usually ride a local, Boulder County or regional route? (local, express or regional route)?	Percent of Transit Commuters Who Use Each Type of Bus Service	
	2001	1999
HOP/SKIP/JUMP/LEAP/BOUND	41%	75%
Local RTD	23%	
County service routes (225, 227, Long JUMP)	9%	N/A
Regional/Express	23%	7%
		18%
Two or more buses	4%	N/A
TOTAL	100%	100%

Figure 33 displays the types of buses used by transit riders in 2001 by Boulder and non-Boulder residents. About 90% of ridership by bus users who live within the Boulder city limits is on CTN buses or local RTD (compared to 35% by riders who live in other cities). Almost half of the transit users who live in other cities (45%) say they usually ride regional or express buses.

Figure 33: Usual Bus by Residence
Boulder Valley Employee Survey 2001

Type of Bus	Percent of Transit Commuters Who Use Each Type of Bus Service by Place of Residence	
	Boulder (city limits)	Other Cities
HOP/SKIP/JUMP/LEAP/BOUND	61.2	19.8
Local RTD	28.6	15.7
County service routes	4.9	13.8
Regional/Express	2.7	44.7
Two or more buses	2.7	6.0
TOTAL	100.0	100.0

For the first time in 2001, survey participants who do not use transit (about 84% of all respondents) were asked why they don't ride the bus. Respondents could give more than one reason. The reason given most frequently, by almost half of those who don't use transit, was that the bus takes too much time. The need for a vehicle either before or after work was the reason give by 39% of these respondents, and almost as large a proportion, 31%, said they need their vehicle for errands during the workday.

When these responses were examined by the city where employees live, the top three reasons remained the same for both residents of Boulder and of other cities. However, a larger proportion of out-of-city residents (16%) than Boulder residents (2%) said that the reason they don't ride the bus is because there is no bus service to their home (see Figure 34).

Figure 34: Reasons for Not Riding the Bus
2001 Boulder Valley Employee Survey

Reason	Percent of Employees Who Don't Use Transit		
	Total	Residence	
		Boulder (city limits)	Other cities
bus takes too much time	45.4	26.1	24.4
need vehicle before/after work	38.5	19.6	21.8
need vehicle for errands during day	30.8	20.2	15.6
no bus service to home	21.2	1.8	16.0
company doesn't offer EcoPass	11.8	7.3	6.1
bus not convenient for me	11.6	5.4	6.9
no bus service to company location	8.9	4.2	5.2
use another mode (walk, bike)	4.7	7.9	0.3
need/prefer to use vehicle	4.6	4.0	1.9
other	3.0	2.1	1.5
work at home	1.3	1.4	0.4

Note: The percent of respondents adds to more than 100% because survey participants were instructed to indicate more than one response, if necessary, when answering this question.

EcoPass Participation

Since 1997, a survey question on the BVES has asked employees whether or not they have an EcoPass. In 1999 and 2001 about 20% of employees stated that they had some type of EcoPass, an increase from about 14% in 1997. Figure 35 also shows the types of EcoPasses employees had.

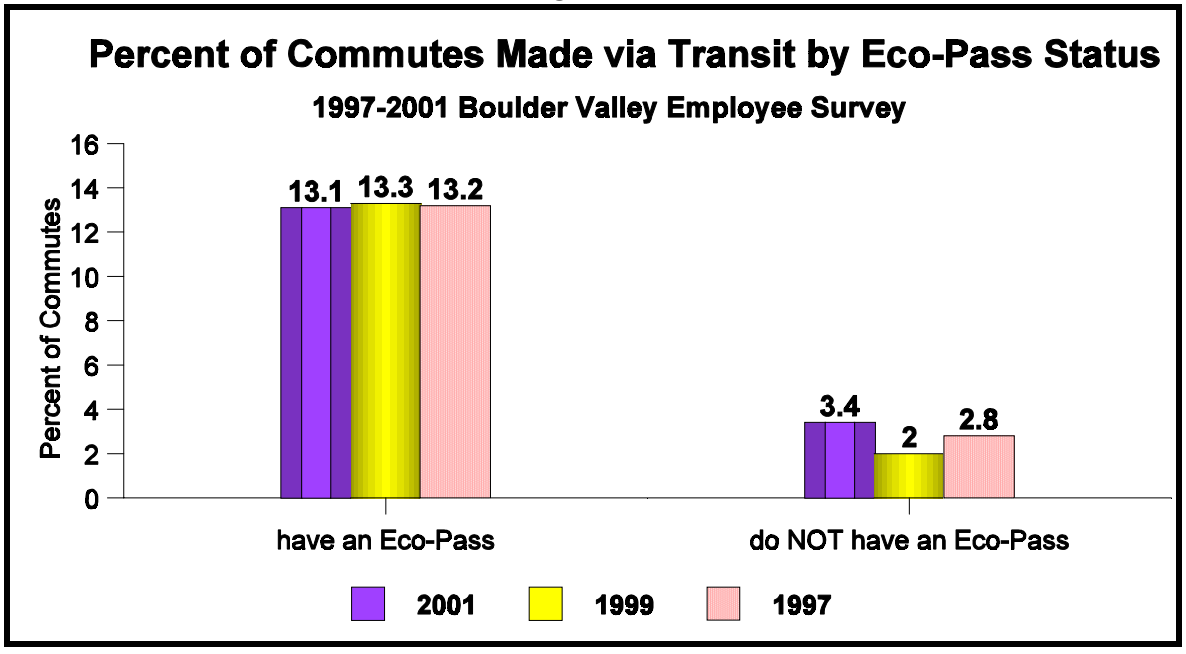
Figure 35: Percent of Employees Who Have an EcoPass
Boulder Valley Employee Survey 1997-2001

Do you have an EcoPass	Percent of Respondents		
	2001	1999	1997*
yes, through my employer	15.6%	13.4%	14.3%
yes, through my neighborhood	1.4%	1.6%	
yes, a CU Boulder Student Pass	3.3%	4.2%	
yes, a CU Boulder faculty/staff pass	0.8%	0.7%	
no	78.9%	80.1%	85.7%
TOTAL	100.0%	100.0%	100.0%

*In 1997, employees were not asked what type of EcoPass they had.

The effect of the EcoPass on the work commute was examined, as shown in Figure 36. Employees with an EcoPass were much more likely to have ridden the bus for their commute than those without an EcoPass. In all three survey years, about 13% of EcoPass holders had taken the bus compared to 2% to 3% of non-EcoPass employees.

Figure 36



In 1997 and 1999, survey participants who did not have an EcoPass were asked why they did not. This question was not asked in 2001, instead respondents who said they did not use transit were asked why they did not (see Figure 34). However, many of the reasons given in the 1997-1999 EcoPass question were similar to reasons given in 2001 for not riding the bus. Figure 37 shows the reasons given in 1997 and 1999 for not having an EcoPass. It may be worth noting that the proportion of respondents who gave "my company doesn't offer EcoPasses" as a reason declined between 1999 and 1997 and was even lower in 2001, at 12% as shown in Figure 34.

Figure 37: Reasons for not having an EcoPass
1997-1999 Boulder Valley Employee Survey

Reason	Percent of Employees who did not have EcoPasses	
	1999	1997
I wouldn't ride the bus even if I had one	38.4	41.4
My company doesn't offer EcoPasses	25.9	40.4
No bus service to my home	11.7	13.5
No bus service to my company's location	4.5	8.5
Have a bus pass through CU	0.2	3.9
Not aware of the EcoPass program	2.3	3.8
Don't need an EcoPass	1.6	3.1
Need my car for work	2.2	2.2
Wouldn't use the EcoPass enough to cover its cost	1.3	1.3
Inconvenient	5.1	N/A
Have a bus pass through neighborhood	0.2	0.1
Too expensive to purchase EcoPass	N/A	0.7
My company is not eligible for EcoPass program	N/A	0.1
Other	6.5	11.9

Note: The percent of respondents adds to more than 100% because survey participants were instructed to indicate more than one response, if necessary, when answering this question.

Distance from Home to Nearest Bus Stop

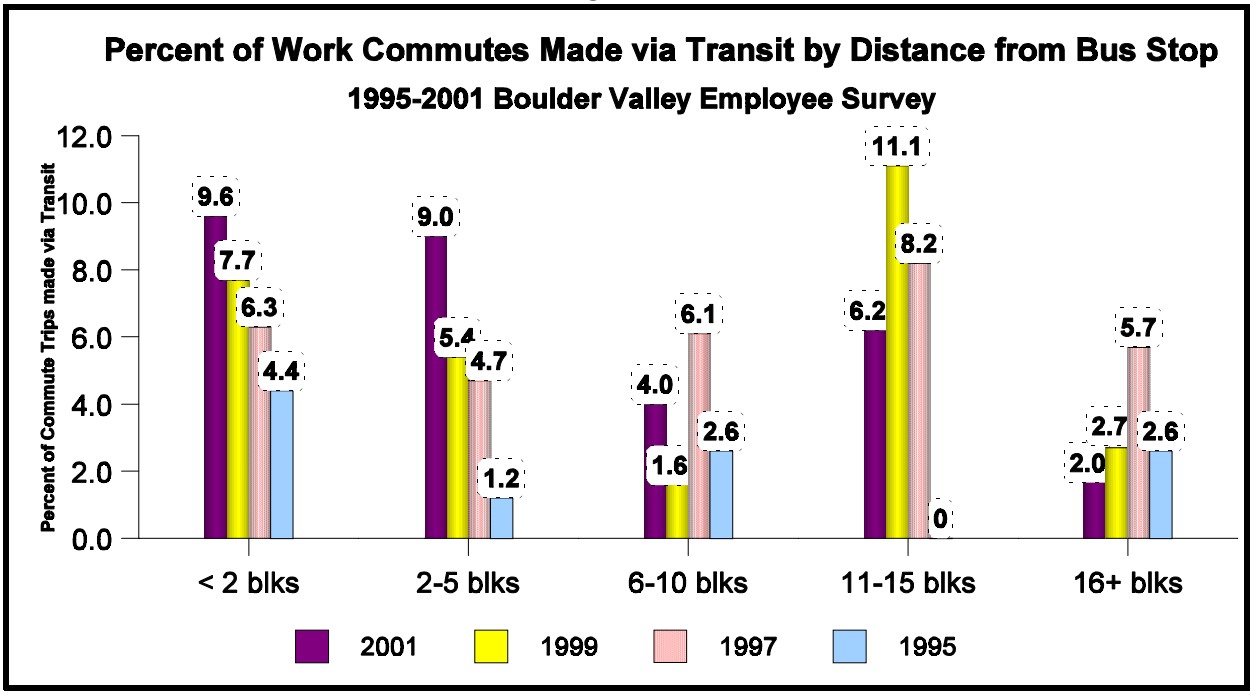
In all survey years, survey participants were asked how far their home was from the nearest bus stop. Distance to a bus stop from employees' homes has changed little over the study period. Between 1991 and 1999, 50% to 59% of employees lived within 5 blocks of a bus stop. In 2001, about 50% of respondents said they lived within 5 blocks of a bus stop and the proportion of employees who said they lived 16 or more blocks away from a stop increased to 19% (compared to 12% to 16% in previous survey years).

Figure 38: Distance to Closest Bus Stop
Boulder Valley Employee Survey 1991-2001

Blocks to Closest Bus Stop	Percent of All Employees					
	2001	1999	1997	1995	1993	1991
Less than 2 blocks	22.8	26.3	28.2	29.5	26.5	28.2
2 - 5 blocks	27.4	28.3	28.9	29.4	28.3	29.0
6 - 10 blocks	9.7	7.9	9.1	10.4	14.8	11.8
11 - 15 blocks	4.7	3.8	3.0	2.7	4.6	2.4
16 + blocks	19.0	15.8	13.9	11.7	12.4	12.9
Don't Know	16.4	17.9	16.9	16.2	13.7	15.7
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0

Distance from a bus stop is hypothesized to correlate with transit use for the work commute. Figure 39 shows the distance from a bus stop by employees who used transit for their trip to work on survey day. In 2001, a larger proportion of transit commute trips than in previous years were made by employees who lived less than 2 blocks from a stop (9.6%) or 2 to 5 blocks away (9.0%).

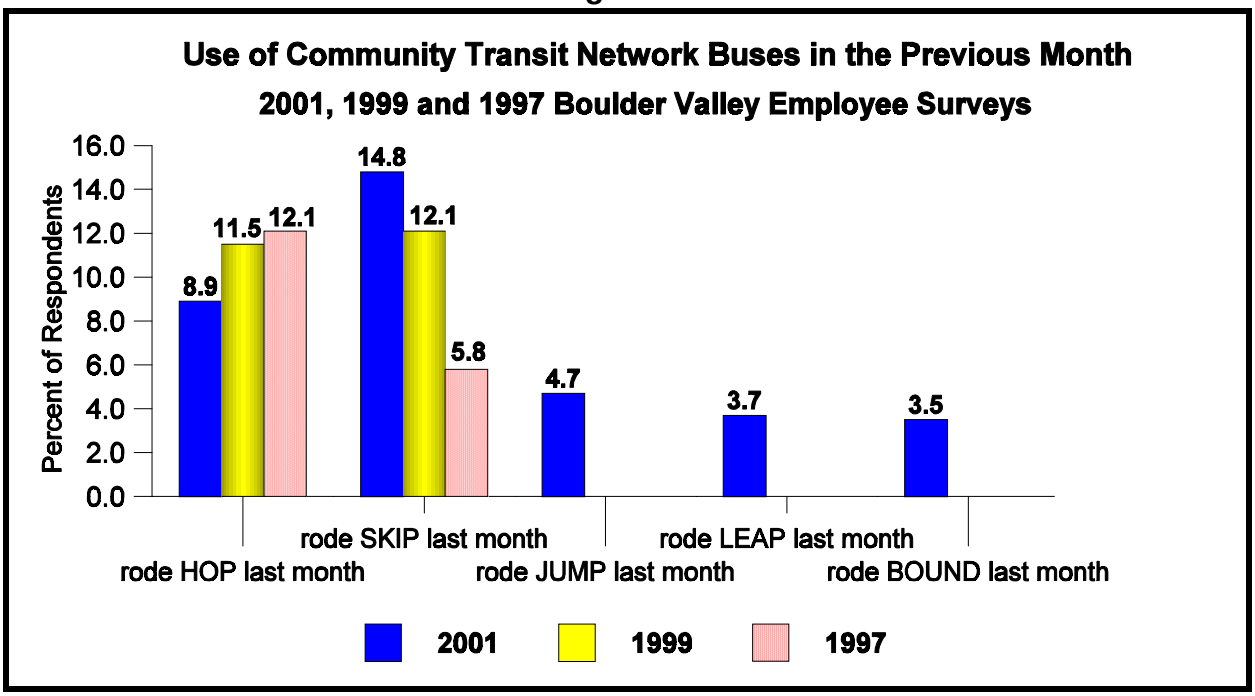
Figure 39



Use of Community Transit Network Buses (HOP, SKIP, LEAP, JUMP & BOUND)

Survey participants were asked about their use of Boulder's high frequency bus services in the previous month. At the time of the 1997 survey, the HOP had been in service for about two years and the SKIP had just been introduced to replace the 202 bus.[16] Figure 40 shows that since the inception of the SKIP, use by employees has more than doubled while employee ridership on the HOP has decreased somewhat. *The reduction in HOP ridership may be a result of riders switching to the SKIP, since the routes of the two services coincide along the Broadway corridor between Walnut and Euclid.* Questions regarding JUMP, LEAP and BOUND use were introduced in 2001 so no comparison figures are yet available. Almost 5% of employees in the current year said they had ridden the JUMP at least once in the previous month, about 4% of employees rode the LEAP and almost 4% rode the BOUND during the month previous to the survey.

Figure 40



[16] In 1997, survey participants were asked whether they had heard of the HOP and the SKIP, but this question was not asked in 1999 on the assumption that these services are now familiar to Boulder employees.

Employees' Child Care Needs

The need to transport children to or from child care has been cited by some employees as a reason for choosing to drive rather than using other travel modes. In 2001, three questions were asked regarding child care, the transportation of children and the possible effects of transporting children on choice of travel mode.[17] As Figure 41 shows, about 20% of the employees said that they are responsible for transportation of their children at least some of the time in 2001.

Figure 41: Responsibility for Transportation of Children To or From School or Child Care
Boulder Valley Employee Survey 2001

	Percent of All Employees
Responsible for transportation of children to school or child care at least some of the time	22%
Not responsible for transportation of children	78%
TOTAL	100%

Although almost one-quarter of employees said they were sometimes responsible for transporting children, on the day of the survey, only 7% did so. This figure is comparable to the proportion of employees who transported children to child care on their survey day in 1999 (shown in Figure 42).

Figure 42: Took Child(ren) to Child Care on Survey Day
Boulder Valley Employee Survey 1999-2001

	Percent of All Employees	
	2001	1999
Took child(ren) to school or child care today	7.2%	7.9%
Did not transport child(ren) today	92.8%	92.1%
TOTAL	100.0%	100.0%

[17] In 1999, a larger set of questions was asked regarding respondents child care and the transportation of children at the request of the Housing and Human Services Department. Questions asked in 2001 may not be comparable. In 1999, the first question asked was whether the respondent had a child or children in child care and if they did not, they were directed to skip the child care section. In 2001, the first question in the set was, "Are you responsible at least some of the time for transporting your child(ren) to and/or from **school** or child care?" This question captured a larger proportion of respondents than did the questions asked in 1999.

While the need to transport children is mentioned by employees as a reason for driving to work, it is worth noting that on the day of the survey, employees who said they transported children cited a variety of modes for their work commute (see Figure 43). In 2001, among all respondents who carpooled on survey day, only about 15% were transporting children under the age of 16. *Others who said they transported children apparently did not include taking their children to child care as part of the work commute.*

Figure 43: Commute Mode on Survey Day by Those Who Took Child(ren) to Child Care Boulder Valley Employee Survey 2001

Travel Mode on Survey Day	Percent of Employees Who Transported Children	
	2001	1999
Drove alone	66%	74%
Carpooled	18%	21%
Multi-mode	2%	N/A
Walked	2%	2%
Biked	3%	1%
Rode bus	7%	2%
Worked at home	3%	2%
TOTAL	100%	100%

When employees who said they were responsible for transporting children at least some of the time were asked how the need to transport children affected their choice of transportation for their work commute, about 60% in 2001 said they would make the same work commute choice with or without their children (compared to 45% in 1999). Almost one-third (32%) said they would be more likely to use modes other than driving if they did not have to transport children in 1999, though only 10% gave the same response in 2001(see Figure 44).

Figure 44: Effect of Transporting Child(ren) on Choice of Transportation Mode for Work Commute Boulder Valley Employee Survey 1999-2001

	Percent of Employees Who Ever Transport Children	
	2001	1999
It doesn't affect my choice of transportation; I would **make the same choices** for my work commute as I do when I transport my children	61%	45%
I **might be more likely to use modes other than driving** if I did not have to transport my children to and from child care.	26%	22%
I **would definitely be more likely to use modes other than driving** if I did not have to transport my children to and from child care	10%	32%
Other	3%	1%
TOTAL	100%	100%

Factors Influencing Modal Choice

There are a variety of factors that can affect mode choice for the work commute. Many demographic and employment characteristics were measured as a part of the Boulder Valley Employee Survey. The association of these variables with mode choice is presented in Appendix I. In order to differentiate which of these factors were the most important correlates of mode selection, a logistic regression model was developed[18].

Figure 45, on the following page, displays the variables that were found to be significantly associated with choosing to driving alone for the work commute, the direction of each relationship and the parameter estimates of each factor in the model. These parameters are exponentiated so that interpretation is easier[19]. In addition, the adjusted odds ratios in Figure 45 were converted to a positive scale so that the factors could be ranked by strength of association.

Not surprisingly, the single most important factor affecting whether or not a respondent drove alone to work was whether or not a car was available for commuting. In order of strength of association, other factors affecting SOV use for the work commute were:

- Eco Pass status - Employees who had a vehicle at home available for commuting were more likely to have used a SOV.
- Presence or absence of a transportation coordinator - Employees whose companies did not have a transportation coordinator were more likely to drive alone to work.
- Ratio of vehicles to adults in the household - Employees whose households had one or more cars were more likely to commute to work by driving alone.
- Distance between work and home - Employees who lived and worked in different zip code areas were more likely to use an SOV.
- Stops on the way home from work. Employees who said they made stops on the way home from work were more likely to commute by driving alone.
- Place of residence - Employees living in areas other than the Boulder Valley were more likely to use an SOV than those who live in Boulder Valley.
- Renting versus ownership of residence - Employees who owned their home were more likely to use an SOV than employees who rented their home.

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[18] The statistical procedure used was logistic regression. Socioeconomic and work characteristics were simultaneously entered into the procedure and a model was fit to predict mode choice. This procedure enables calculation of the importance of a variable when all the other factors are controlled for. This is useful as many characteristics that may be related to mode choice may also be related to each other. The model produced correctly predicted SOV status in 79% of cases.

[19] The parameters derived in a logistic regression are the natural log of the odds ratio. "Odds ratio" refers to a specific type of association between a given factor with an outcome of interest. An odds ratio is what is sounds like: a ratio of the "odds". An odds ratio of "1" means that there is no association between two factors. An example may help: having a child in elementary school may be associated with a person coming down with the flu or a cold this winter. One way of quantifying this is to say that the odds are 1:2 that persons who have children in elementary school will get the flu or a cold this winter (33% probability) while the odds that someone who does not have children in elementary school will get the flu or a cold is 1:5 (17% probability). The odds ratio would be (1:2)÷(1:5), or 2.46.

- Stops on the way to work - Employees who don't make stops on the way to work were more likely to have used a SOV.
- Gender - Females were more likely to have used an SOV than males
- Work-related errands required during the workday - Employees whose jobs required errands during the workday were more likely to commute by SOV.

Figure 45: Factors Related to Mode Choice: Odds Ratio
2001 Boulder Valley Employee Survey

Factor	Direction of association with SOV use	Adjusted Odds Ratio	95% confidence interval		Interpretation
			lower bound	upper bound	
Car at home available for commuting	+	3.42	2.45	4.78	Employees who had a vehicle at home available for commuting were more likely to have used a SOV
Eco Pass Status	+	2.63	1.96	3.45	Employees who had no Eco Pass were more likely than those with an Eco Pass to use an SOV
Transportation Coordinator	+	2.19	1.09	4.41	Employees more likely to use a SOV if company had no Transportation Coordinator
Ratio of vehicles to adults in the household	+	1.95	1.45	2.61	Employees from households with one or more cars per adult were more likely to have used a SOV
Work and home have same zip code	+	1.85	1.33	2.56	Employees who live and work in different zip code areas were more likely to use an SOV
Whether employee made stops on the way home from work	+	1.84	1.43	2.38	Employees who made stops on the way home from work were more likely to have used a SOV
Place of residence	+	1.69	1.32	2.17	Employees living in areas other than the Boulder Valley were more likely to use an SOV than those who live in Boulder Valley
Rent vs. Own	+	1.67	1.30	2.17	Employees who own their home were more likely to use an SOV than employees who rent their home
Whether employee made stops on the way to work	+	1.67	1.25	2.22	Employees who don't make stops on the way to work were more likely to have used a SOV
Gender	+	1.49	1.18	1.82	Females were more likely to have used an SOV than males
Employee required to run errands during workday	+	1.34	1.05	1.70	Employees whose jobs require errands more likely to have used a SOV

Appendix I: Breakdown of Selected Characteristics

The table in this appendix displays employee responses to a variety of commute-related behavior and demographic characteristics.

Figure I.1: Breakdown of Selected Characteristics
Boulder Valley Employee Survey 2001

Selected Characteristics	Percent of Respondents
Sex	
male	47%
female	53%
Age	
18-24	15%
25-34	30%
35-44	24%
45+	31%
Education	
less than bachelor's degree	41%
bachelor's degree or greater	59%
Wages	
$7.00 or less	4%
$7.01 to 12.00	17%
$12.01 to $20.00	31%
more than $20	48%
Income	
less than $20,000	9%
$20,000 to 29,999	8%
$30,000 to $49,999	20%
$50,000 to $74,000	21%
$75,000 or more	42%
Tenure	
rent	35%
own	65%
Children in Household	
no children	74%
children	26%
Transport Child to Child Care at Least Some of the Time	
no	78%
yes	22%
Distance from Work	
0-2 miles	15%
3-5 miles	16%
6-10 miles	19%
11-20 mils	31%
21 or more miles	18%

Selected Characteristics	Percent of Respondents
City of Residence	
Boulder Valley	43%
Other	57%
Boulder city	35%
Other	65%
Work and Live in Same Zip Code?	
Yes	15%
No	85%
Ratio of Vehicles to Adults	
less than 1 car	19%
1 or more cars	81%
Vehicle Available for Commute?	
Yes	86%
No	14%
Distance from Bus Stop	
5 blocks or less	50%
over 5 blocks	50%
Make Any Stops on Way to Work?	
None	76%
1 or more	24%
Make Any Stops Yesterday on Way Home from Work?	
None	55%
1 or more	45%
Made Any Trips During Day Yesterday?	
None	37%
1 or more	63%
Job Require You to Run Errands?	
Yes	55%
No	45%
Have an Eco-Pass?	
Yes	20%
No	80%

Selected Characteristics	Percent of Respondents
Amount of Time Worked	
full time	89%
part-time	11%
Work Schedule	
Monday to Friday, days	80%
Other	20%
Job Category	
retail/sales	10%
service/restaurant/delivery	13%
manufacture/production/hi-tech	18%
office	51%
construction/trades/laborer	4%
other	5%
Company Offer Eco-Pass?	
Yes	30%
No	70%

Selected Characteristics	Percent of Respondents
Company Have an Employee Transportation Coordinator?	
Yes	2%
No	98%
Location of Company	
center	20%
periphery	69%
PO box	10%
Size of Company	
1-4 employees	10%
5-9 employees	9%
10-49 employees	29%
50 or more employees	52%

Appendix II: Modal Split by Demographic Variables

The tables in this Appendix display modal split of the work commute by selected demographic variables from the 2001 Boulder Valley Employee study. Differences between subgroups were statistically significant for all the variables shown in the tables below.

How did you get to work today?	Sex	
	male	female
drove alone	68.1%	75.6%
carpooled	8.6%	9.1%
multi-mode	2.0%	.7%
walked	3.4%	2.2%
biked	10.1%	3.7%
rode CTN bus	2.0%	2.9%
rode local RTD	1.3%	3.2%
rode regional-exp	.5%	1.1%
work at home	4.0%	1.4%
TOTAL	100.0%	100.0%

How did you get to work today?	Age			
	18-24	25-34	35-44	45+
drove alone	48.5%	71.7%	79.0%	79.0%
carpooled	11.5%	9.2%	9.5%	5.8%
multi-mode	2.8%	1.4%	.7%	.5%
walked	8.2%	3.2%	2.3%	.5%
biked	9.3%	9.7%	4.8%	3.4%
rode CTN bus	9.7%	1.7%	1.6%	1.3%
rode local RTD	9.6%	1.1%	.3%	1.8%
rode regional-exp	.5%	1.0%	.3%	1.3%
work at home		1.0%	1.4%	6.5%
TOTAL	100.0%	100.0%	100.0%	100.0%

How did you get to work today?	Education	
	less than a bachelor's	bachelor's or more
drove alone	69.6%	74.5%
carpooled	10.3%	7.4%
multi-mode	1.8%	.7%
walked	4.2%	1.9%
biked	4.5%	8.1%
rode CTN bus	4.2%	1.4%
rode local RTD	3.4%	1.4%
rode regional-exp	1.2%	.6%
work at home	.8%	4.0%
TOTAL	100.0%	100.0%

How did you get to work today?	Hourly Wage			
	$7.00 or less	$7.01 - $12.00	$12.01 - $20.00	more than $20.00
drove alone	19.3%	61.9%	72.6%	79.8%
carpooled	5.5%	9.3%	9.7%	7.6%
multi-mode	5.3%	2.0%	1.5%	.6%
walked	8.8%	6.9%	2.2%	1.9%
biked	9.8%	11.3%	6.4%	5.0%
rode CTN bus	30.0%	4.0%	1.6%	.8%
rode local RTD	21.3%	3.3%	2.6%	.4%
rode regional-exp		.6%	2.4%	.3%
work at home		.6%	1.1%	3.5%
TOTAL	100.0%	100.0%	100.0%	100.0%

How did you get to work today?	Income				
	less than $20,000	$20,000 - $29,999	$30,000 - $49,999	$50,000 - $74,999	$75,000 or more
drove alone	45.2%	63.7%	70.9%	76.5%	80.9%
carpooled	10.5%	9.0%	8.2%	7.3%	9.0%
multi-mode		2.8%	1.5%	.5%	.6%
walked	13.5%	4.1%	3.6%	2.0%	.9%
biked	12.9%	14.1%	6.5%	7.0%	4.2%
rode CTN bus	11.5%	1.4%	2.4%	1.1%	.6%
rode local RTD	5.9%	4.2%	3.1%	1.2%	.4%
rode regional-exp	.5%	.7%	1.6%	2.0%	.3%
work at home			2.3%	2.3%	3.1%
TOTAL	100.0%	100.0%	100.0%	100.0%	100.0%

How did you get to work today?	Rent or Own?	
	rent	own
drove alone	57.5%	79.7%
carpooled	8.3%	9.1%
multi-mode	3.4%	.2%
walked	6.2%	1.0%
biked	11.6%	3.9%
rode CTN bus	6.4%	.6%
rode local RTD	5.3%	1.0%
rode regional-exp	.9%	.8%
work at home	.4%	3.8%
TOTAL	100.0%	100.0%

How did you get to work today?	children in household	
	no children	children
drove alone	70.8%	75.9%
carpooled	7.8%	11.8%
multi-mode	1.5%	.5%
walked	3.0%	1.9%
biked	7.3%	4.0%
rode CTN bus	2.9%	1.8%
rode local RTD	2.8%	1.6%
rode regional-exp	1.2%	.2%
work at home	2.7%	2.3%
TOTAL	100.0%	100.0%

How did you get to work today?	Transport Child to Child Care At Least Some of the Time?	
	no	yes
drove alone	72.0%	77.7%
carpooled	8.2%	12.3%
multi-mode	.7%	0.4%
walked	2.9%	1.1%
biked	8.0%	2.3%
rode CTN bus	2.6%	1.6%
rode local RTD	1.7%	1.6%
rode regional-exp	1.2%	0.2%
work at home	2.7%	2.6%
TOTAL	100.0%	100.0%

How did you get to work today?	distance traveled to work (in miles)				
	0-2	3-5	6-10	11-20	21+
drove alone	44.9%	67.2%	78.5%	81.4%	82.1%
carpooled	3.4%	5.9%	9.2%	11.3%	12.3%
multi-mode	.3%	2.1%	1.2%	.8%	1.6%
walked	16.1%	.9%	.2%	.2%	
biked	17.3%	15.1%	6.7%	1.1%	
rode CTN bus	2.2%	4.1%	1.5%	2.7%	1.1%
rode local RTD	5.6%	3.6%	1.7%	.9%	1.3%
rode regional-exp		.3%	1.0%	1.5%	1.6%
work at home	10.2%	.9%		.2%	
TOTAL	100.0%	100.0%	100.0%	100.0%	100.0%

How did you get to work today?	Live in city of Boulder?	
	live in city of Boulder	do NOT live in Boulder city
drove alone	56.5%	80.5%
carpooled	4.5%	11.2%
multi-mode	1.5%	.9%
walked	7.3%	.3%
biked	15.1%	1.9%
rode CTN bus	4.7%	1.5%
rode local RTD	5.6%	.8%
rode regional-exp	.1%	1.4%
work at home	4.7%	1.4%
TOTAL	100.0%	100.0%

How did you get to work today?	Live in Boulder Valley?	
	live in Boulder Valley	do NOT live in Boulder Valley
drove alone	60.6%	80.9%
carpooled	5.3%	11.5%
multi-mode	1.2%	1.0%
walked	5.9%	.4%
biked	13.0%	1.6%
rode CTN bus	4.2%	1.4%
rode local RTD	4.7%	.8%
rode regional-exp	.1%	1.6%
work at home	5.0%	.7%
TOTAL	100.0%	100.0%

How did you get to work today?	concordance of work and home zip code	
	home and work same zip	home and work different zip
drove alone	58.1%	75.2%
carpooled	5.8%	9.5%
multi-mode		1.1%
walked	10.2%	1.3%
biked	9.9%	6.0%
rode CTN bus	1.3%	2.9%
rode local RTD	2.2%	1.9%
rode regional-exp		1.1%
work at home	12.5%	.9%
TOTAL	100.0%	100.0%

How did you get to work today?	Ratio of vehicles to adults	
	less than 1 car per adult	1 or more cars per adult
drove alone	50.8%	78.5%
carpooled	7.2%	8.8%
multi-mode	2.5%	.7%
walked	9.6%	1.1%
biked	14.6%	5.0%
rode CTN bus	6.0%	1.0%
rode local RTD	6.1%	1.0%
rode regional-exp	1.6%	.7%
work at home	1.7%	3.1%
TOTAL	100.0%	100.0%

How did you get to work today?	Vehicle available for commute?	
	yes	no
drove alone	78.0%	38.4%
carpooled	9.1%	8.9%
multi-mode	1.0%	2.1%
walked	1.2%	12.1%
biked	5.8%	11.5%
rode CTN bus	.9%	14.0%
rode local RTD	1.1%	9.5%
rode regional-exp	.8%	2.1%
work at home	2.1%	1.5%
TOTAL	100.0%	100.0%

How did you get to work today?	Distance to bus stop	
	5 blocks or less	over 5 blocks
drove alone	65.1%	81.1%
carpooled	7.7%	9.9%
multi-mode	1.4%	1.2%
walked	4.8%	.8%
biked	9.7%	3.4%
rode CTN bus	4.8%	.2%
rode local RTD	3.7%	.7%
rode regional-exp	.8%	1.1%
work at home	2.0%	1.5%
TOTAL	100.0%	100.0%

How did you get to work today?	Make stops on way to work?	
	no stops	one or more
drove alone	73.3%	68.3%
carpooled	6.4%	16.4%
multi-mode	.7%	3.1%
walked	3.1%	1.6%
biked	6.8%	5.5%
rode CTN bus	2.6%	2.3%
rode local RTD	2.5%	2.3%
rode regional-exp	1.4%	.4%
work at home	3.4%	
TOTAL	100.0%	100.0%

How did you get to work today?	Make stops on way home?	
	no stops	one or more
drove alone	67.9%	77.3%
carpooled	7.9%	9.9%
multi-mode	.8%	1.7%
walked	4.3%	.8%
biked	7.4%	5.4%
rode CTN bus	3.1%	2.0%
rode local RTD	2.5%	2.3%
rode regional-exp	1.3%	.4%
work at home	4.7%	
TOTAL	100.0%	100.0%

How did you get to work today?	Make trips during the day?	
	no day trips	one or more
drove alone	68.3%	74.4%
carpooled	8.6%	9.0%
multi-mode	1.5%	1.1%
walked	3.5%	2.3%
biked	5.9%	6.7%
rode CTN bus	3.9%	1.8%
rode local RTD	4.2%	1.4%
rode regional-exp	1.6%	.5%
work at home	2.4%	2.7%
TOTAL	100.0%	100.0%

How did you get to work today?	job require errands?	
	no	yes
drove alone	69.2%	76.6%
carpooled	8.4%	9.2%
multi-mode	1.8%	.3%
walked	3.6%	1.8%
biked	7.9%	4.9%
rode CTN bus	3.2%	1.5%
rode local RTD	3.3%	1.1%
rode regional-exp	1.2%	.7%
work at home	1.3%	3.9%
TOTAL	100.0%	100.0%

How did you get to work today?	Have an EcoPass?	
	Have an EcoPass	No EcoPass
drove alone	57.6%	75.8%
carpooled	11.1%	8.3%
multi-mode	2.5%	.9%
walked	4.1%	2.4%
biked	10.4%	5.5%
rode CTN bus	5.2%	2.0%
rode local RTD	4.3%	2.0%
rode regional-exp	3.6%	.2%
work at home	1.4%	2.9%
TOTAL	100.0%	100.0%

How did you get to work today?	Time Worked	
	full-time	part-time
drove alone	73.2%	65.0%
carpooled	8.9%	7.5%
multi-mode	1.4%	.4%
walked	2.5%	4.9%
biked	6.7%	5.6%
rode CTN bus	2.2%	4.7%
rode local RTD	2.0%	4.8%
rode regional-exp	1.0%	.7%
work at home	2.1%	6.4%
TOTAL	100.0%	100.0%

How did you get to work today?	Work Schedule	
	M-F, days	other
drove alone	74.4%	62.9%
carpooled	9.1%	7.7%
multi-mode	.8%	3.1%
walked	2.5%	4.1%
biked	6.2%	7.8%
rode CTN bus	1.9%	5.6%
rode local RTD	2.0%	3.4%
rode regional-exp	1.1%	.4%
work at home	1.9%	5.1%
TOTAL	100.0%	100.0%

How did you get to work today?	Job Category					
	retail/ sales	service/ restrnt/ delivery	manuf/ prodctn/ hi-tech	office	contructn/t rades/ laborer	other
drove alone	58.4%	58.8%	76.7%	76.2%	72.7%	82.7%
carpooled	9.0%	7.1%	10.7%	8.9%	13.0%	
multi-mode	1.8%	3.0%	1.0%	.4%		2.9%
walked	9.0%	3.0%	.3%	2.3%	1.3%	1.0%
biked	8.6%	7.5%	6.0%	5.9%	7.8%	8.7%
rode CTN bus	2.7%	11.2%	1.3%	1.4%		1.0%
rode local RTD	4.1%	7.1%	1.0%	1.4%		1.0%
rode regional-exp	1.4%	.4%	.5%	1.3%	1.3%	
work at home	5.0%	1.9%	2.4%	2.3%	3.9%	2.9%
TOTAL	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

How did you get to work today?	Employer provide Eco-Passes?	
	no	yes
drove alone	76.0%	64.4%
carpooled	9.0%	8.6%
multi-mode	.6%	3.0%
walked	2.3%	3.6%
biked	6.2%	6.6%
rode CTN bus	.7%	6.4%
rode local RTD	1.0%	6.1%
rode regional-exp	.7%	1.5%
work at home	3.7%	
TOTAL	100.0%	100.0%

How did you get to work today?	Employer have an Employee Transportation Coordinator?	
	no ETC	have an ETC
drove alone	73.0%	50.2%
carpooled	8.9%	7.4%
multi-mode	1.3%	
walked	2.6%	3.8%
biked	5.9%	23.5%
rode CTN bus	2.2%	13.4%
rode local RTD	2.6%	
rode regional-exp	.9%	1.7%
work at home	2.6%	
TOTAL	100.0%	100.0%

How did you get to work today?	center	periphery	po box
drove alone	66.3%	75.0%	64.0%
carpooled	8.4%	8.9%	8.9%
multi-mode	1.6%	1.0%	2.5%
walked	4.9%	2.1%	3.1%
biked	8.9%	5.8%	6.5%
rode CTN bus	2.4%	2.3%	5.1%
rode local RTD	2.9%	2.3%	2.7%
rode regional-exp	1.7%	.4%	3.0%
work at home	2.9%	2.2%	4.3%
TOTAL	100.0%	100.0%	100.0%

How did you get to work today?	Number of Employees in Company			
	1-4	5-9	10-49	50+
drove alone	57.4%	78.5%	71.6%	74.2%
carpooled	6.2%	9.6%	8.5%	9.3%
multi-mode	.4%	.3%	.8%	1.9%
walked	4.9%	2.2%	4.5%	1.5%
biked	6.1%	5.3%	9.1%	5.3%
rode CTN bus	.4%	1.3%	3.2%	2.9%
rode local RTD	1.7%	1.0%	1.9%	3.2%
rode regional-exp		.9%	.4%	1.5%
work at home	22.9%	.9%		.2%
TOTAL	100.0%	100.0%	100.0%	100.0%

Appendix III: Comparison of Results to the Travel Diary Study

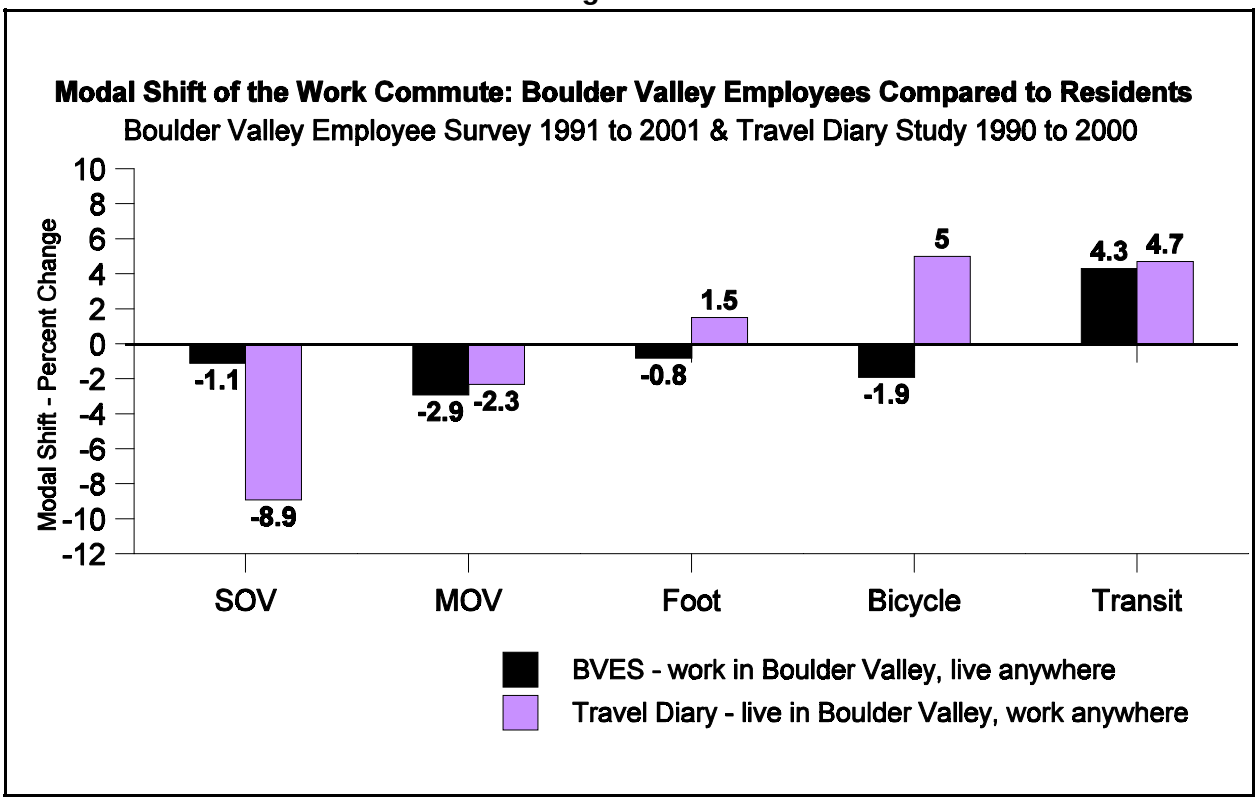
Two studies of self-reported travel are regularly conducted in Boulder to determine the impact of efforts to reduce single occupant vehicle travel. These are the Boulder Valley Employee Survey (BVES) and the Travel Diary Study. The Boulder Valley Employee Survey is conducted in odd-numbered years, while the Travel Diary Study is implemented in even-numbered years.

These two studies examine travel behavior of two different populations: Boulder Valley residents in the Travel Diary Study, and employees in the BVES. Boulder Valley residents live within the Valley, but may work anywhere. Boulder Valley employees work within the Valley, but may live anywhere. There are other dissimilarities in the two studies that should be noted when comparing their results. In the Employee Study, respondents are asked how they got to work. In the Travel Diary study, respondents record information about every trip they make.

For the following comparisons, all trips from the Travel Diary Study that had "work" as a destination or origin, and "home" as the other end of this trip, even with stops between, were used. Further, a trip with any type of passenger in the car, even driving a child to school on the way to work, would be classified as an "MOV" trip in the Travel Diary Study, although an employee in the Employee Survey in a similar situation may report that he or she drove to work alone. Thus, the modal split estimates of the work commute may vary between the Travel Diary Study and the Employee Study. Nevertheless, both studies are necessary in order to gain a more complete picture of travel behavior within Boulder Valley.

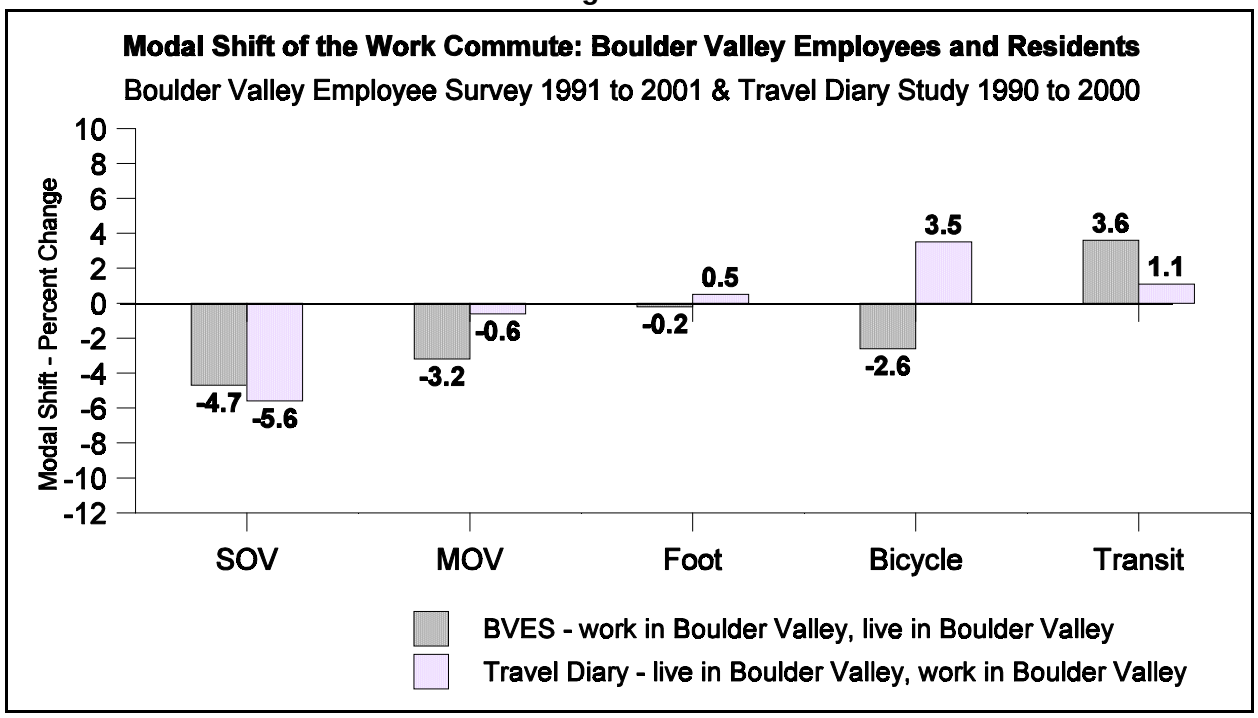
Figures III.1 compares modal shift estimates for the work commute from the two studies. Both studies have shown that a greater proportion of work trips were being made by transit, although the amount of shift shown differs in the two studies.

Figure III.1



Figures III.2 shows results of more similar subsets of respondents from the two studies which allows a fairer comparison. In this case, workers from the Boulder Valley Employee study who live in Boulder were chosen, and residents from the Travel Diary Study who work in Boulder were selected. The results show that both studies demonstrate a shift away from SOV use for the work commute, and an increase in transit use by Boulder residents who work in Boulder.

Figure III.2



An interesting observation can be made by comparing the reduction in SOV use and increased transit use among Travel Diary respondents, from Figures III.1 and III.2. Boulder residents in the Travel Diary study who work anywhere (including outside the Valley), as shown in Figure III.1, have increased transit use and reduced SOV use over the last ten years in higher proportions than Boulder residents who work in the Boulder Valley as shown in Figure III.2.

Appendix IV. National Statistics

Figure IV.1
U.S. Census Bureau
Quick Table QT-03: Profile of Selected Economic Characteristics: 2000

Census 2000 Supplementary Survey Summary Tables

NOTE. Data based on twelve monthly samples during 2000.

	Estimate		***Lower Bound***	***Upper Bound***
Geographic Area: United States				
COMMUTING TO WORK				
Workers 16 years and over	127,437,475	100.00%	127,164,227	127,710,723
Car, truck, or van -- drove alone	97,247,142	76.30%	96,973,280	97,521,004
Car, truck, or van -- carpooled	14,307,131	11.20%	14,168,628	14,445,634
Public transportation (including taxicab)	6,574,861	5.20%	6,478,367	6,671,355
Walked	3,412,899	2.70%	3,344,114	3,481,684
Other means	1,820,935	1.40%	1,767,850	1,874,020
Worked at home	4,074,507	3.20%	4,007,756	4,141,258
Mean travel time to work (minutes)	24.3		24.1	24.5
Geographic Area: Colorado				
COMMUTING TO WORK				
Workers 16 years and over	2,189,634	100.0%	2,154,291	2,224,977
Car, truck, or van -- drove alone	1,686,454	77.0%	1,633,695	1,739,213
Car, truck, or van -- carpooled	243,807	11.1%	222,299	265,315
Public transportation (including taxicab)	72,238	3.3%	61,599	82,877
Walked	62,582	2.9%	50,674	74,490
Other means	31,936	1.5%	24,848	39,024
Worked at home	92,617	4.2%	84,588	100,646
Mean travel time to work (minutes)	23.4		22.7	24.1

Figure IV.2

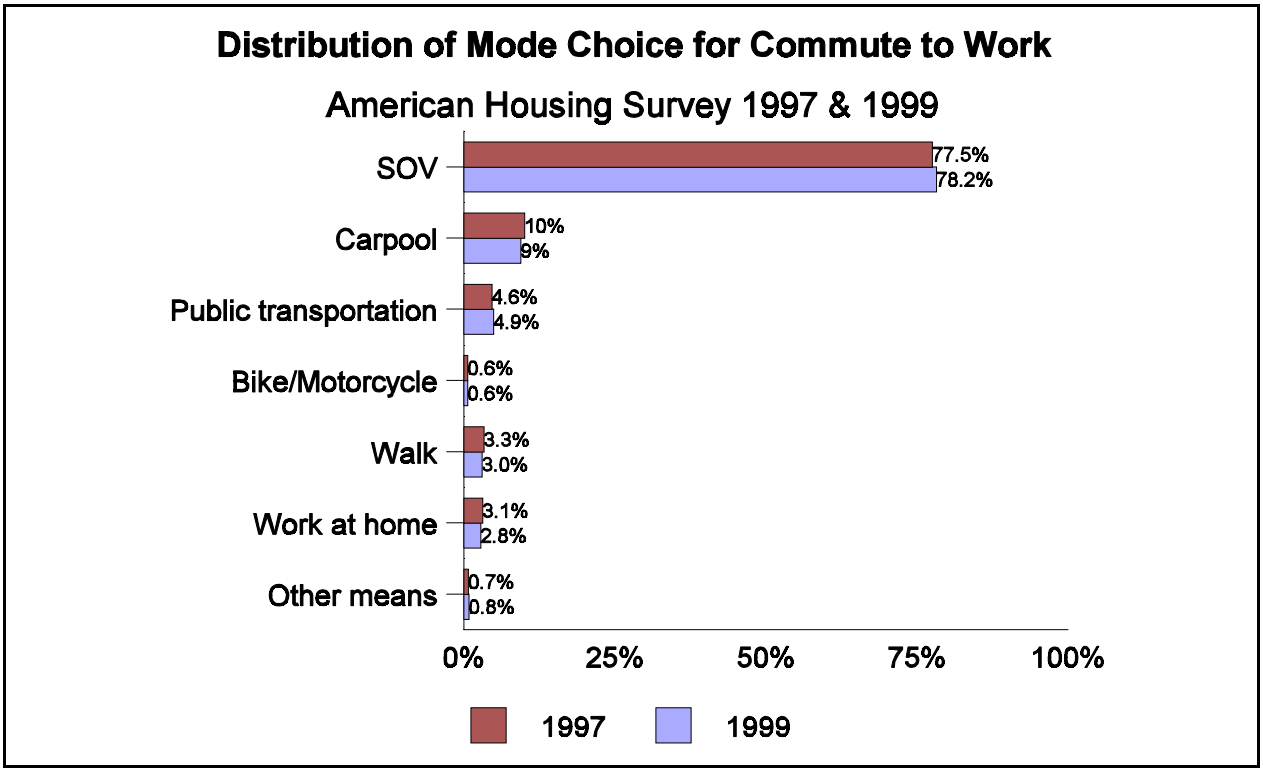


Figure IV.3

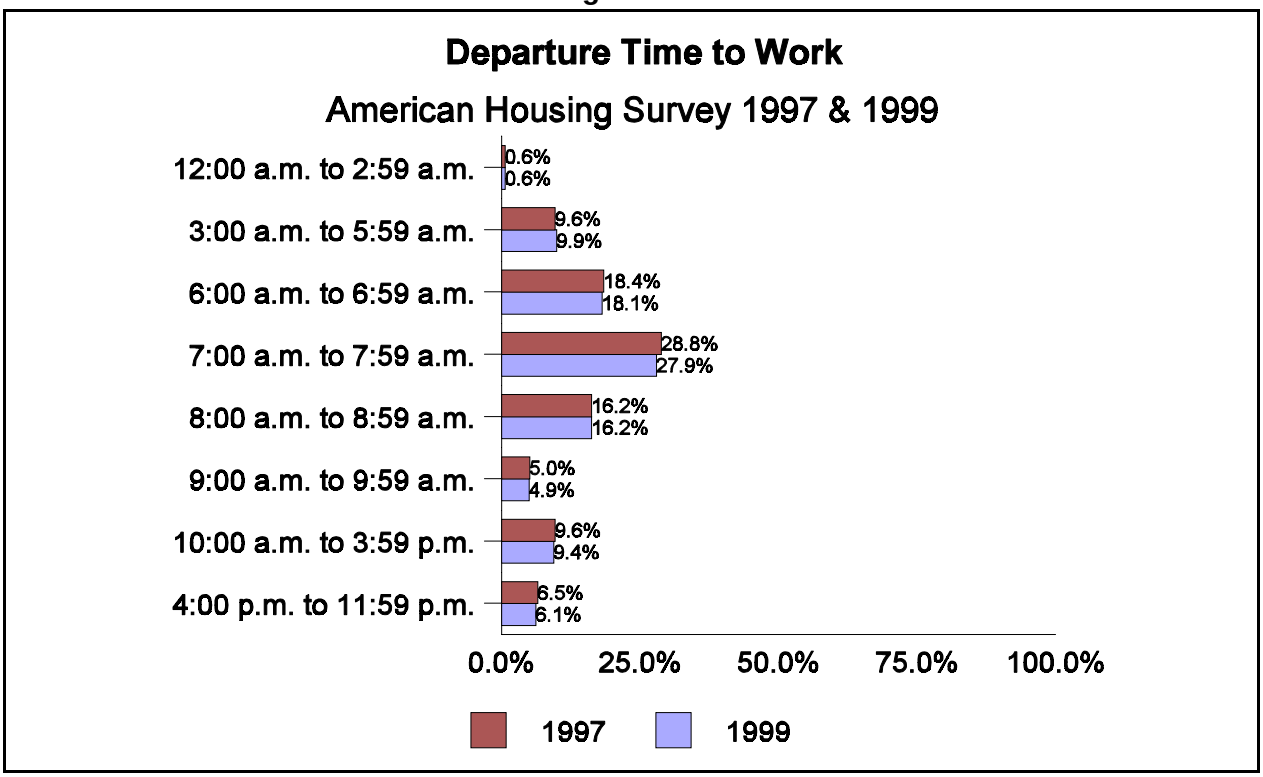


Figure IV.4

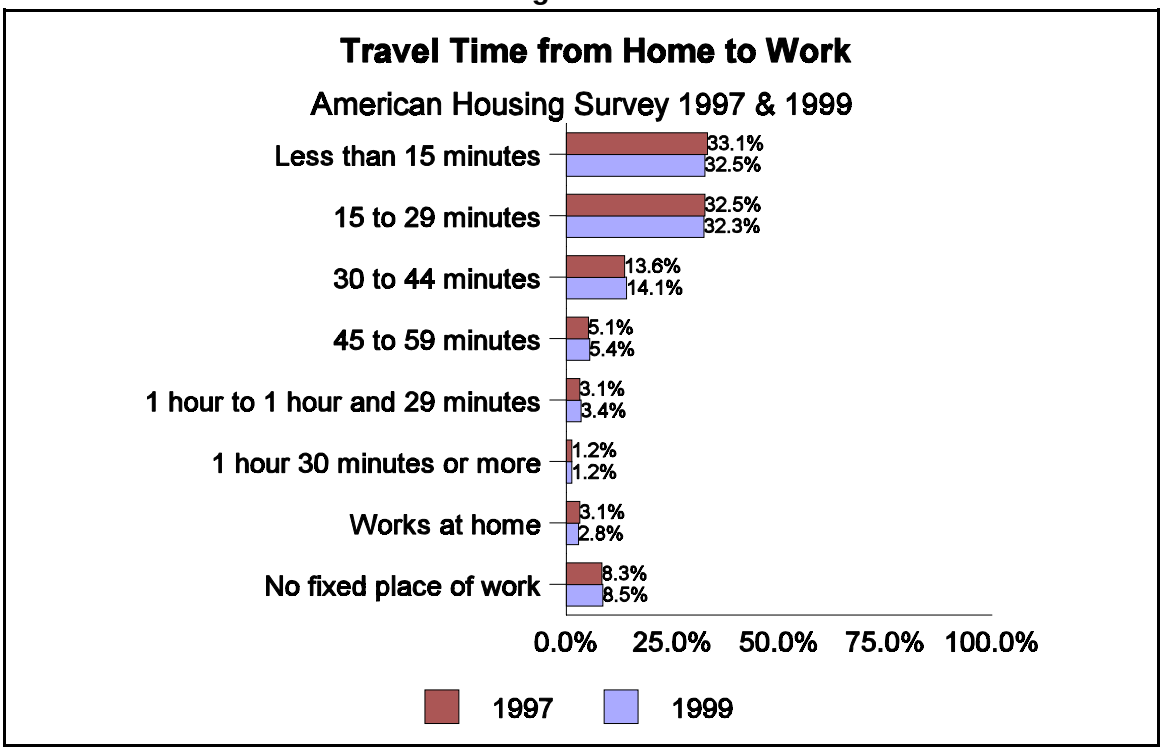


Figure IV.5

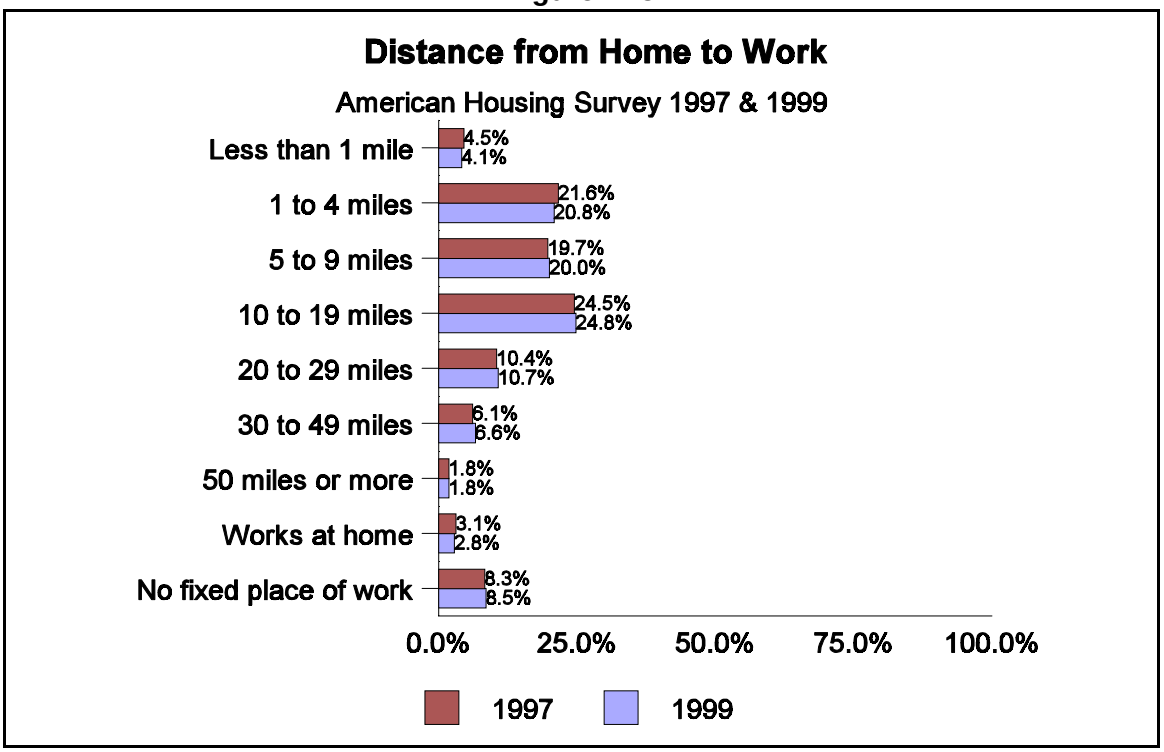
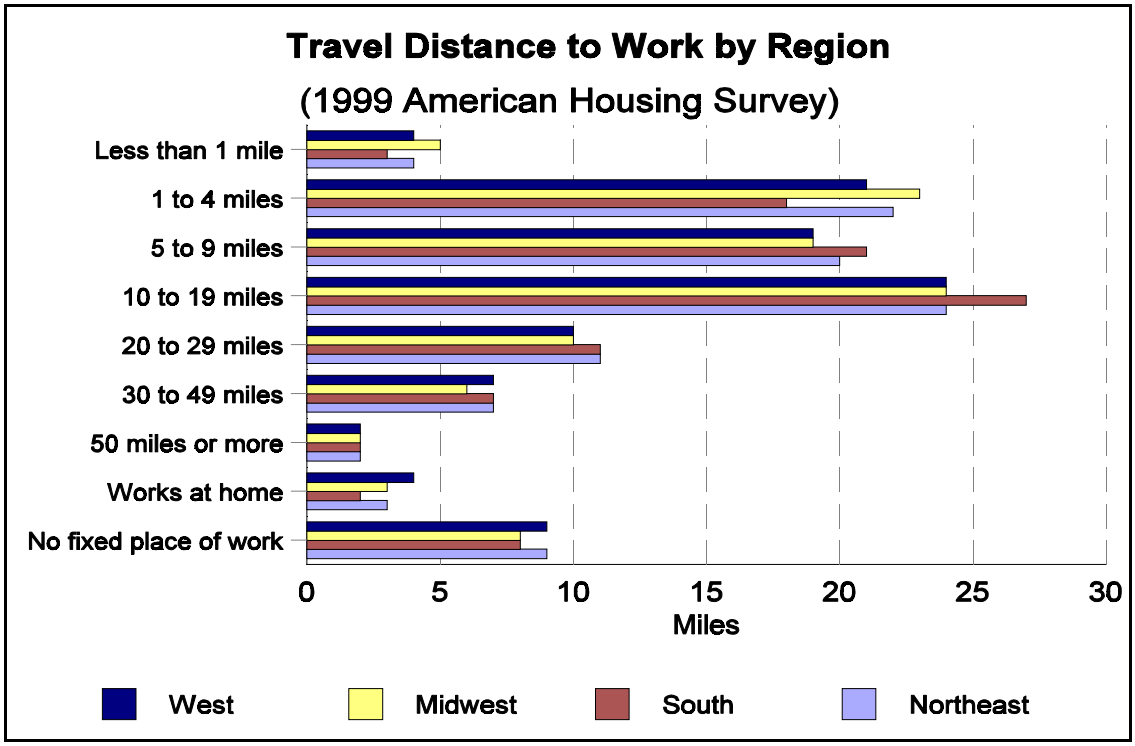


Figure IV.6


Travel Distance to Work by Region
(1999 American Housing Survey)
Less than 1 mile
1 to 4 miles
5 to 9 miles
10 to 19 miles
20 to 29 miles
30 to 49 miles
50 miles or more
Works at home
No fixed place of work
0
5
10
15
20
25
30
Miles
West
Midwest
South
Northeast

These tables are part of the report "*Commuting Alternatives in the United States: Recent Trends and a Look to the Future*" distributed by the U.S. Department of Transportation (see Reference section at the end of this appendix). The tables were selected for comparison with data collected for the Boulder Valley Employee Survey.

Figure IV.7

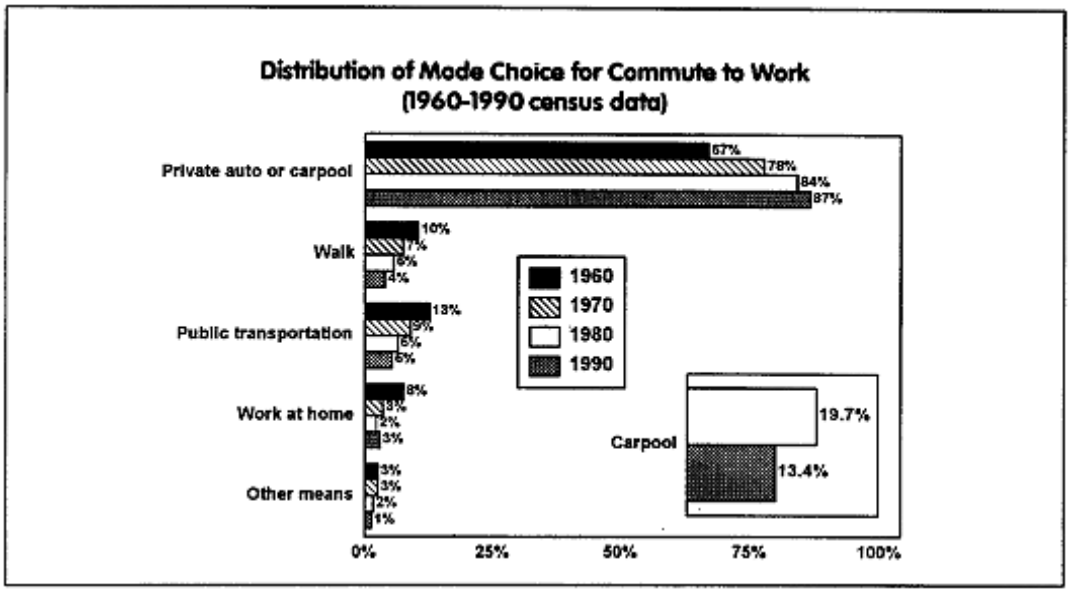


Figure IV.8

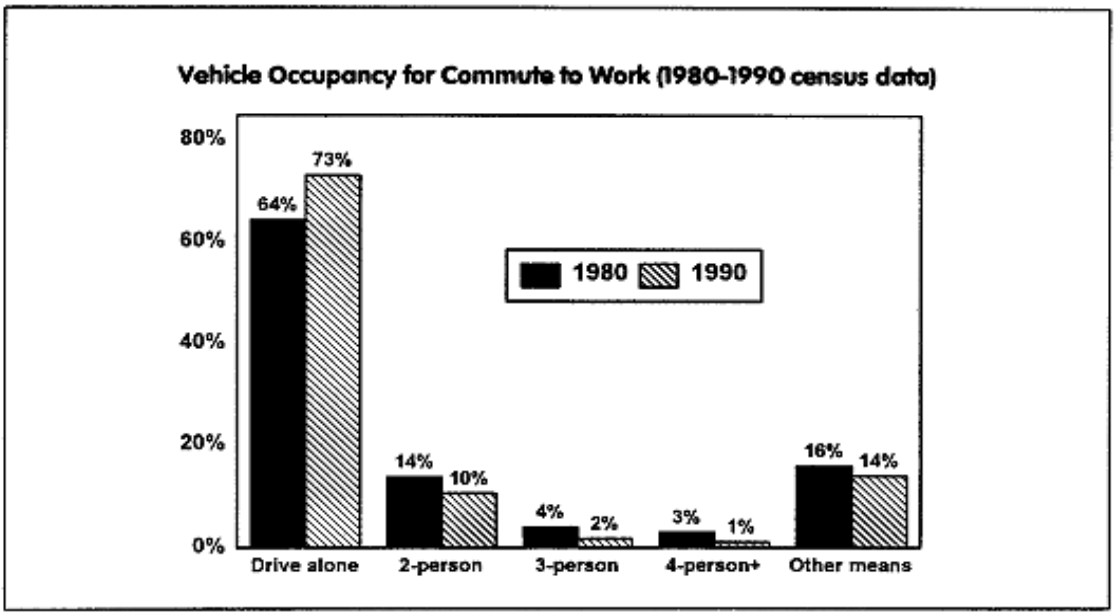


Figure IV.9

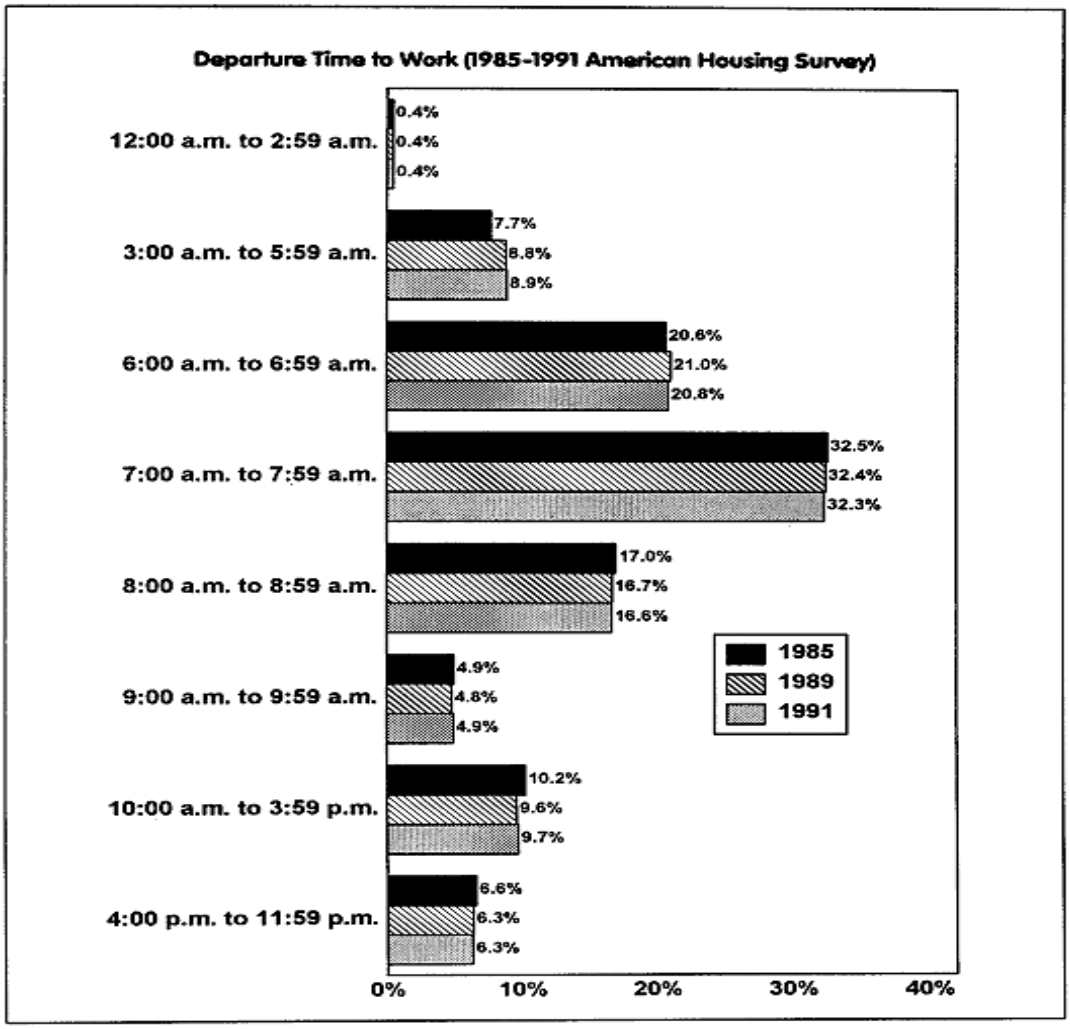


Figure IV.10

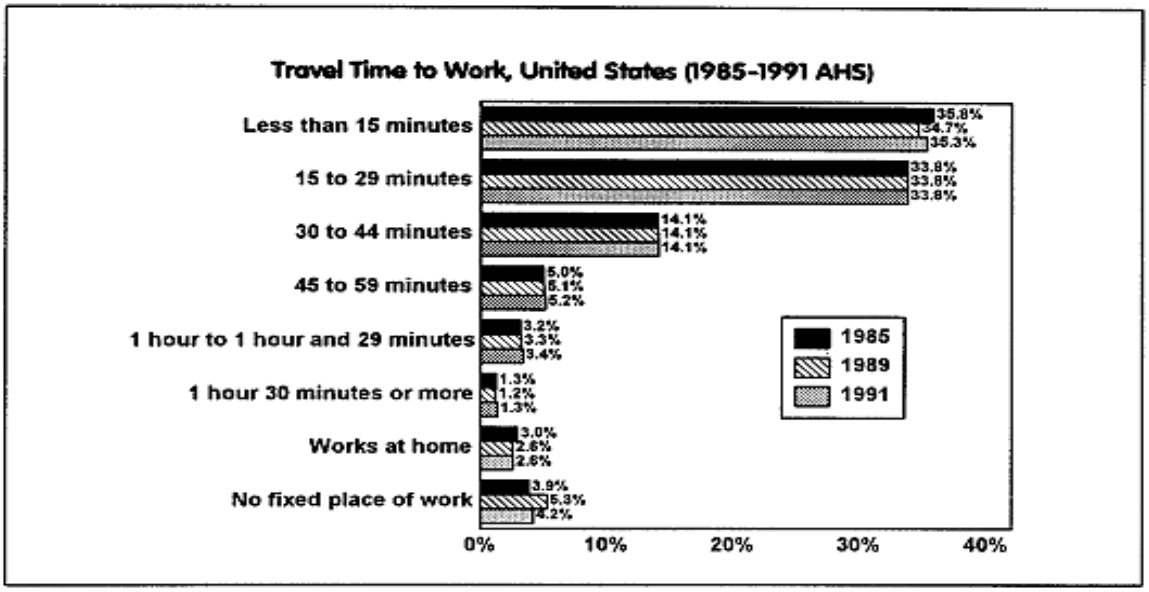


Figure IV.11

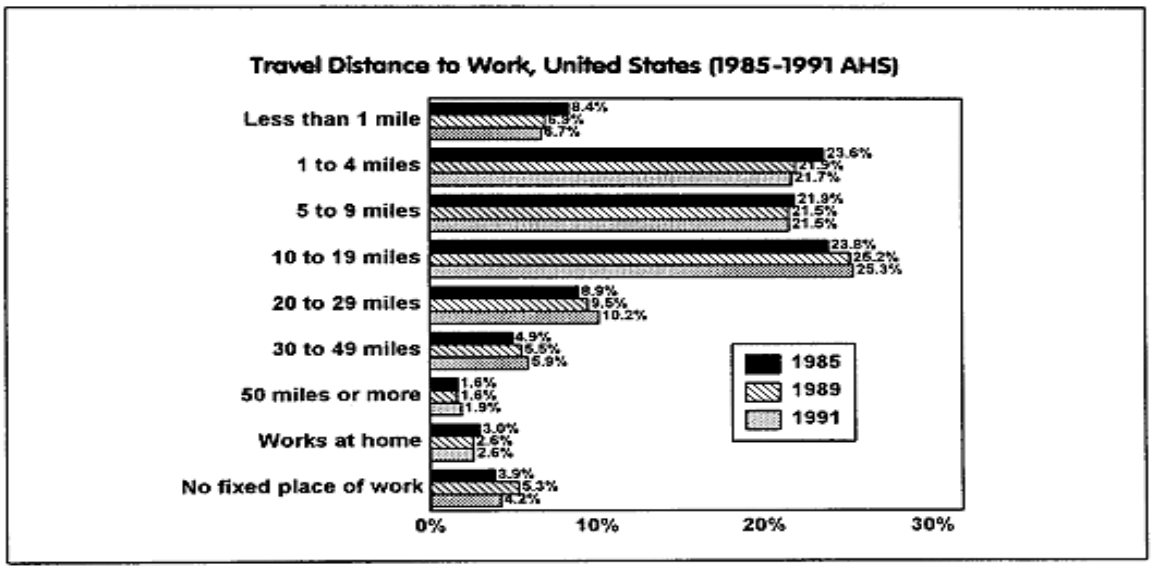


Figure IV.12

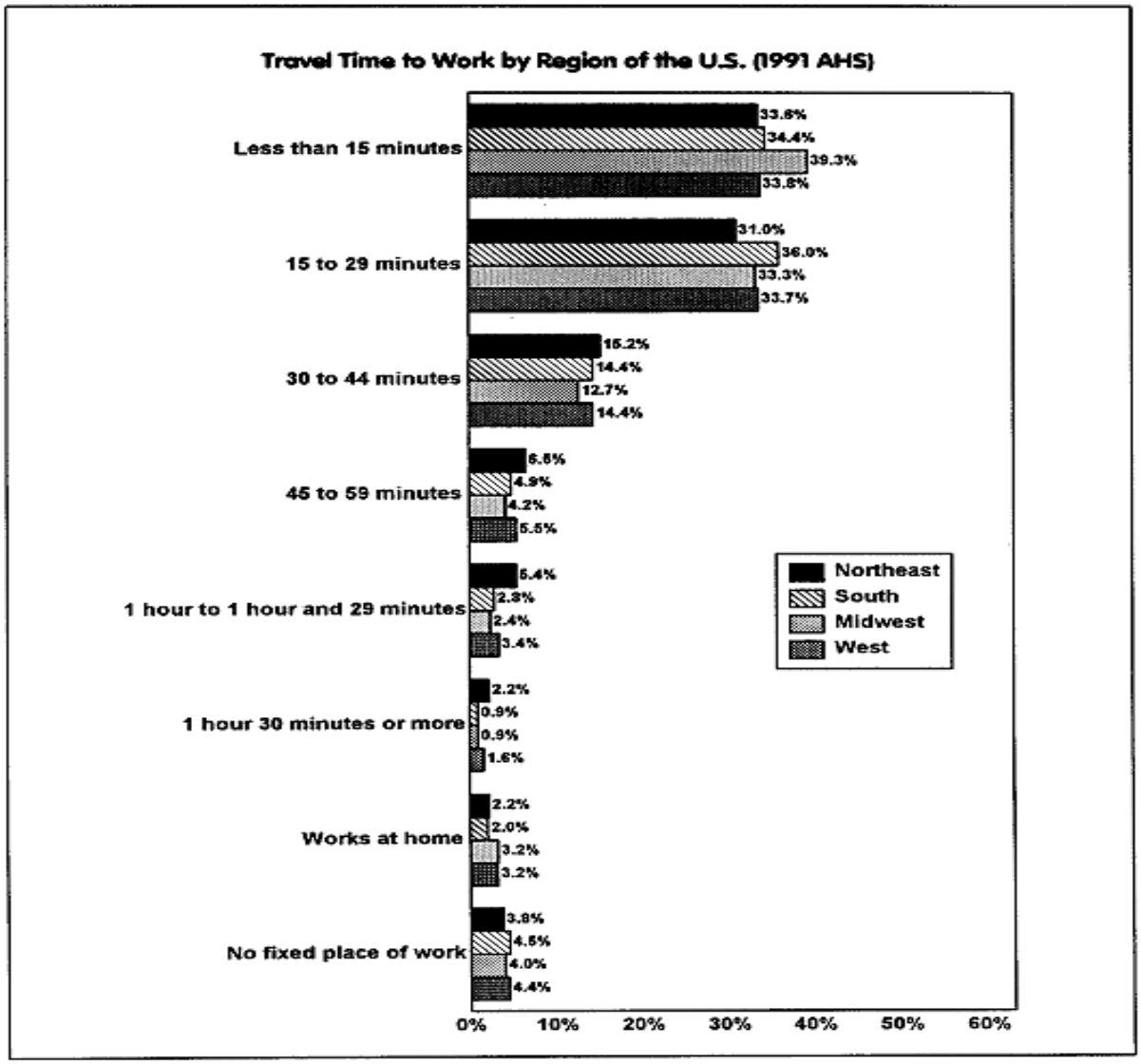


Figure IV.13

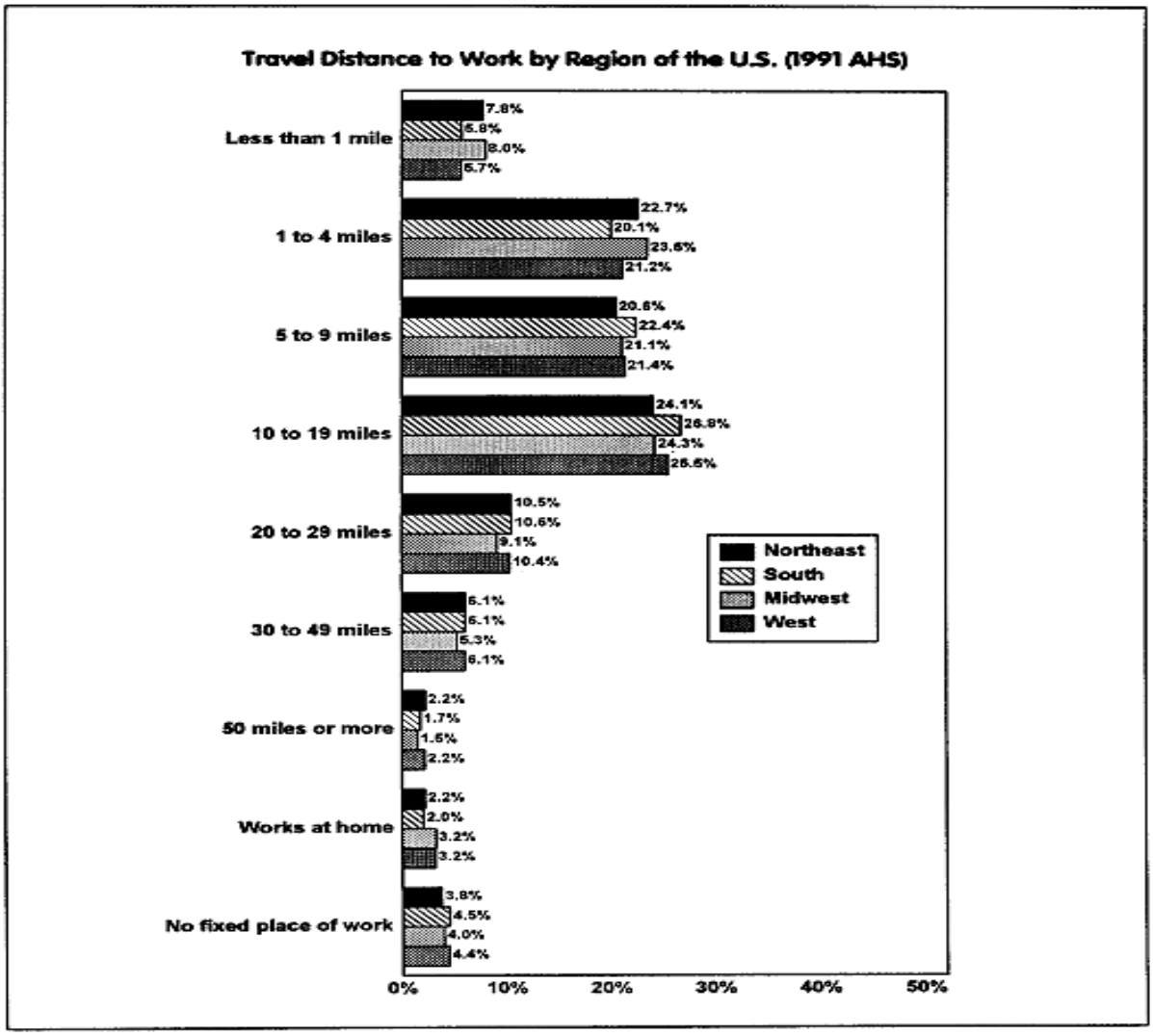

Travel Distance to Work by Region of the U.S. (1991 AHS)
Less than 1 mile
7.8%
5.8%
6.0%
5.7%
1 to 4 miles
22.7%
20.1%
23.6%
21.2%
5 to 9 miles
20.6%
22.4%
21.1%
21.4%
10 to 19 miles
24.1%
26.8%
24.3%
25.6%
20 to 29 miles
10.5%
10.6%
9.1%
10.4%
30 to 49 miles
6.1%
6.1%
5.3%
6.1%
50 miles or more
2.2%
1.7%
1.5%
2.2%
Works at home
2.2%
2.0%
3.2%
3.2%
No fixed place of work
3.8%
4.5%
4.0%
4.4%
Northeast
South
Midwest
West
0%
10%
20%
30%
40%
50%

Figure IV.14

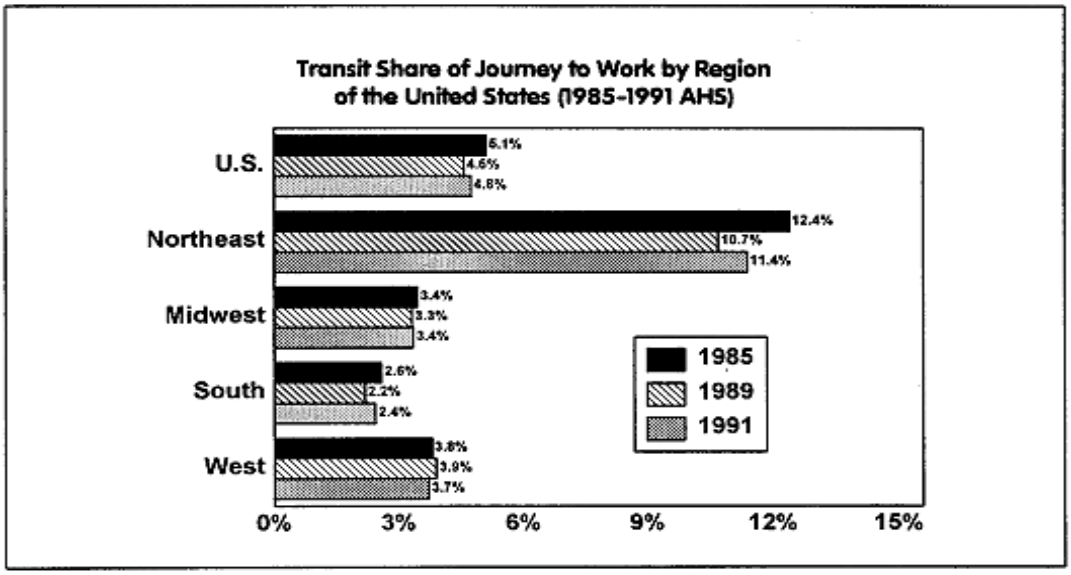


Figure IV.15

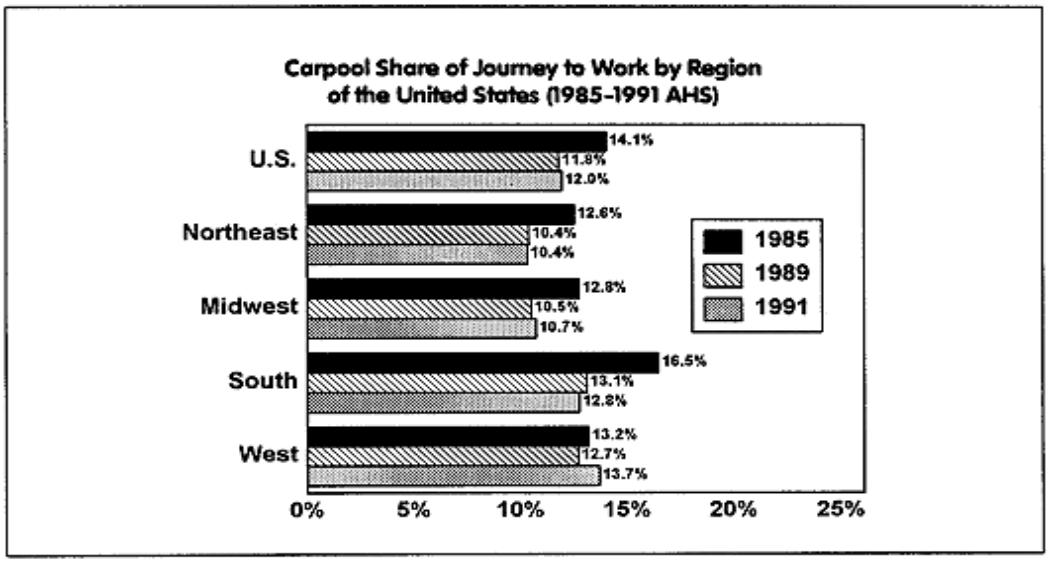
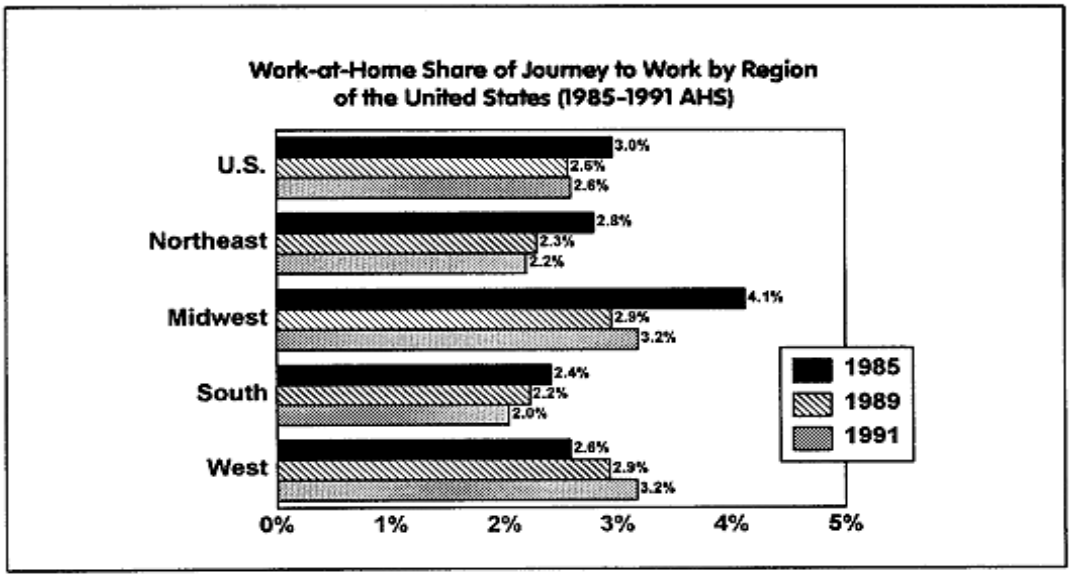


Figure IV.16



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Appendix V. Survey Methodology

Sample Selection

Employees were selected for participation through the use of a stratified, cluster sampling procedure whereby companies in the Boulder Valley were stratified by size and location, and randomly selected to participate. A database was purchased from Direct Marketing Services that provided the business names, addresses, sizes, and names of contact persons for all companies in Boulder Valley. (All addresses with a zip code of 80301 through 80310 were considered to be a part of the Boulder Valley.) The Boulder Valley companies were further divided into center and periphery areas. These boundaries follow census tracts boundaries: tracts considered to be in the center of the Valley were 121.02, 122.02, 122.05, 123.01 and 124.01, while all other tracts in the Valley were considered peripheral. This coding scheme divided the center from the periphery with North/South boundaries of 28th and Baseline, and East/West boundaries of Iris and 9th Street. The table below depicts the number and percent of companies within the three areas of the Valley (including the P.O. boxes, which could not be physically located until they had been contacted).

Figure V.1: Number of Companies by Location and Size in Boulder Valley (according to 2001 purchased database)

Size of Company	Number (Percent) of Companies in Database			
	Center	**Periphery**	**Valley PO Boxes**	**TOTAL**
1-4 employees	1380 (15.7%)	3944 (44.8%)	517 (5.9%)	**5841 (66.3%)**
5-9 employees	325 (3.7%)	763 (8.7%)	114 (1.3%)	**1202 (13.7%)**
10-49 employees	312 (3.5%)	729 (8.3%)	128 (1.5%)	**1169 (13.3%)**
50 or more employees	54 (0.6%)	214 (2.4%)	54 (0.6%)	**322 (3.7%)**
Unknown Size	92 (1.0%)	164 (1.9%)	16 (0.2%)	**272 (3.1%)**
TOTAL	**2163 (24.6%)**	**5814 (66.0%)**	**829 (9.4%)**	**8808 (100.0%)**

This next table shows how many employees were assumed to be in each area and size of company. These numbers were derived by multiplying the number of companies by the lowest number of employees possible in each strata.

Figure V.2: Number of Employees by Location and Size of Companies in Boulder Valley (according to purchased database)

Size of Company	Number (Percent) of Employees in Database			
	Center	**Periphery**	**Valley PO Boxes**	**TOTAL**
1-4 employees	3312 (4.6%)	7099 (9.8%)	931 (1.3%)	**11,342 (15.6%)**
5-9 employees	1983 (2.7%)	5188 (7.1%)	775 (1.1%)	**7,946 (10.9%)**
10-49 employees[1]	5741 (7.9%)	13632 (18.8%)	3456 (7.8%)	**22,829 (31.4%)**
50 or more employees	4320 (5.9%)	22470 (30.9%)	2986 (4.1%)	**29,776 (41.0%)**
Unknown Size	276 (0.4%)	492 (0.7%)	48 (0.1%)	**816 (1.1%)**
TOTAL	**15,631 (20.1%)**	**48,882 (67.2%)**	**8,196 (11.3%)**	**72,709 (100.0%)**

[1] This category was actually composed of two groups -- employers of size 10 - 19 employees and employers of size 20 - 49 employees.

The sampling design mimicked the actual representation of number of employees within companies in the Boulder Valley. In total, 674 companies were randomly selected and contacted to participate. Of these companies, 337 agreed to participate and at least one employee completed a survey. This provided a response rate of 50% of companies. Omitting the 139 ineligible companies (those with disconnected phone numbers and companies which went out of business or moved), the response rate was 62%. The dispositions of contacts with these companies are displayed below.

Figure V.3: Final Dispositions of Companies Selected to Participate in the 2001 BVES

Disposition	Percent of Companies			
	Overall	PO Box	Center	Periphery
Agreed to participate, at least one employee completed a survey	50.4%	46.0%	52.2%	50.3%
Agreed to participate, no surveys were completed	4.6%	1.6%	6.8%	4.3%
Refused to participate	23.7%	20.6%	21.7%	24.8%
Extended absence	0.4%	1.6%	0.6%	0.2%
Disconnect, Out of Business, No Listing, No Answer, Moved, etc.	20.8%	30.2%	18.6%	20.3%
TOTAL	100%	100%	100%	100%

Companies who agreed to take part in the study provided lists and phone numbers of employee names (participating companies are listed at the end of this Appendix). Staff members of the Audit and Evaluation Division performed a random selection process on the lists and chose the employees who would receive the questionnaire. Surveys in English and in Spanish, when needed, were distributed to the employer representatives. The number of employees selected to participate from each company was based on company size, as illustrated below.

Figure V.4: Requested Number of Employees to Survey, based on Company Size

Size of Company	Number of Employees Surveyed
1-4 employees	1
5-9 employees	5
10-19 employees	10
20-49 employees	20
50 or more employees	50

Response Rates

Response rates can also be calculated based on the number of employees who were selected to complete the survey. For the smallest companies, response rates were 100%, as only one person was required to fill out the form. However, within company response rates were fairly high in companies of all sizes.

Figure V.5: Employee Response Rate by Location and Size of Completing Companies

Size of Company	Percent of Employees Responding			
	Overall	Center	Periphery	PO Boxes
1-4 employees	100%	100%	100%	100%
5-9 employees	97%	78%	100%	90%
10-49 employees	73%	74%	72%	77%
50 or more employees	51%	52%	51%	46%
ALL	**80%**	**93%**	**77%**	**66%**

Study Design

Each company selected was mailed a letter explaining the importance of the study and asking for participation (for examples of the letters and survey, see Appendix V). The letter was addressed to the contact person listed in the database or the company president or manager. A week after receiving the letter, a research staff member called the contact person to determine if the company would participate and to schedule an appointment to get employee names and explain the procedure. The contact person served as the survey administrator. Research assistants dropped off the surveys to the contact person and explained the importance of random sampling and high response rates. The contact person was then given approximately one week to administer the surveys, which were then picked up by the research assistants.

Differences in the Sample in Each Study Year

Sampling strategies differed somewhat in 1991 compared to subsequent years. In 1991, an equal number of companies were selected from the three areas of the Valley regardless of the proportion of employees or companies in that area. (The results were later weighted back to represent the true proportions.) In following survey implementations, companies were sampled in the same proportions as the percent of employees each strata contained. (Again, however, the results were weighted to represent the true proportions, because companies and employees refused or were out of business in different ratios in various parts of the Valley.)

Further, there were a few differences in the way governmental entities were handled in 1993 and 1997 compared to 1991, 1995, 1999 and 2001. The purchased database in all study years did not include the major governmental bodies within Boulder Valley as single employers, but rather had separate listings for many of the divisions within each entity. For example, within the City of Boulder government, listings were found for the City Attorney's Office, the Purchasing Division, Municipal Elections, etc. In 1993 and 1997, if such a division of a larger governmental agency was selected to be in the sample, that division was considered an employer, and an appropriate number of employees within that division were surveyed. However, in 1991, 1995, and in 1999 such a division was selected, it was deleted from the sample. In 1995 only, a separate stratum of governmental agencies was formed (including organizations as the University of Colorado, each of the federal labs, the City of Boulder and Boulder County), and then a random draw from this stratum was included among the employers selected for surveying.

In 2001, agencies of the City of Boulder government were excluded from the sample because city

government employees are surveyed on their commute habits in separate surveys (e.g., 2001 City Employee Travel Survey). Employees of other governmental agencies (e.g., University of Colorado School of Journalism, Boulder County Maintenance Division) were included in the sample on the presumption that they are employees and are representative of the commuting public.

Data Analysis and Weighting

The surveys were analyzed using the SPSS statistical package. Due to differential participation and response rates of companies of varying size and location, a weighting scheme was utilized to ensure greater representation of the workforce. The responses were weighted in two steps. The first step weighted all companies to a 100% response rate; that is, for every company that had less than the number of employees desired who responded (e.g. 4 workers respond from a company of 8 employees, which should have had 5 returned surveys), the data were weighted up to the number that would have existed if all requested employees in the company selected had responded. This procedure gave each company or cluster the weight it was intended to have. Because some large companies may have only had one or two employees complete the questionnaire, this weight was capped at 3; that is, all surveys with weights greater than three were assigned a weight of 3, so that no individual employee's responses received too great a weight. The second step was to reweight the newly weighted data again to account for differential refusal rates of companies of different size and location. The standard to which these data were weighted was the purchased database, with a few adjustments made to it based on the experience of Audit & Evaluation Division staff's contacts with the companies selected for the survey. Some areas of the Valley had higher out of business rates, and sometimes the database had incorrect information about the number of employees actually employed versus what the database reported. Thus, after these weights were applied, the employees in the sample represented all of those in the Valley (as best it can be described) in terms of location and size of company.

Companies Which Participated in the 2001 Boulder Valley Employee Survey

A-1 Discount Water Inc
Acap Financial Services I
Active Learning Academy
Advance America
Agentsheets Inc
Airgas Intermountain Inc
All Copy Product
All Country Lock & Safe
Allstate Insurance Co
Aloha World Ultra Travel
Alpern Drywall
Amadeus
American Educational Prod
American Family
American Standard Inc
Amway Commercial & Home P
Andrew Spiegel Pc
Antique Furniture Repair
Apothecary Llc
Arapahoe Body & Paint Inc
Arapahoe Realty Inc
Architecture Inc
Art Mart Ltd
Artemis International
Artists 3r/guided Energy
Attache Consultants Inc
Audios Amigos
Australia for Kids
Auto Ss
Ayres Associates
Balbinder Arin
Banana Republic 8017
Bank One Colorado Na
Bath & Body Works Inc
Beatis Press
Ben & Jerrys Scoop Shop
Benchmark
Benji Durden
Better Back Store
Birnbach Mark J DMD PC
Block Sourcing
Blomquist Associates
Body Shop
Books West/Blogistics
Boulder Bins
Boulder County Sheriff Dept.
Boulder Nissan
Boulder Orthopedics
Boulder Postoley Dance
Boulder Precision Lock & Key
Boulder Valley Appliance
Boulder Valley School Dist.
Boulder Venture Partners
Boulder Vision Associates
Bradford Consulting
Break Inn
Brewing Market
Brookside Apartments
Burton Construction LLC
Business Express
C & S Goldbar LLC
C K Magnetics
C Keith Pope Attorney
Caplin and Barnes Law
Care Electronics Inc
Carl C Skulski DDS
Carla King & Associates I
Carquest Inc
Cbiz/RS&A/Bedell
Centennial Properties
Channel 54
Chinook Construction Comp
Chrisman, Bynum
Chuck Bellock Construction
Church of Brethren Fellow
Cindy Tucker Chiropractic
Circadence Corporation
City S Builder Rec
Classroom Technolgies Llc
Collegiate Painter N Denver
Collen Management Inc
Colorado Morris
Colorado Plastic Products
Colotex Electric Supply
Comer & Assoc.
Comet 1 Hr Cleaners & Laundry
Community Action Development
Confeti Craft
Congregation Har Ha Shen
Connair Inc.
CU Office of Contracts & Grants
Coreance Rehabilitation Center
Cream Puffery Inc
Crist Mortuary
Cu College of Business
Custom Hair Extensions
Cynthia L Divino
D Myers Inc
Dahn Holistic Fitness Center
David a Perlick
Dayspring Cntr Fr Chrstn
Dental Aid Inc
Dept of Social Services
Design
Dewey & Assoc Inc
Diversified Asset Management
Dolan Restaurant
Don Alspaugh Attorney
Doug McLean
Downing Elaine Med LPC
Dr Daniel Jules Gerber
DTG Promotions
E-cube Inc.
Eades Michael Dr Md
Earl House Historic Inn
East Boulder Baptist Church
Easylite Ballasts Ltg Systems
Enermap Inc

Enrich Distributors
Equinox Productions Inc
Evergreen Management Corp
Everybody Limited
Extraodinaire Fine Cl Design
Far & Away Studios Inc
Farmer's/Hiebert Agency
Flatiron Park Co.
Flatirons Practice Managment
Flatirons Software Group
Flying Carpet Studio
Folk Dancers Investor Group
Foothill Elementary School
Frank Douglas Charles Dip
Front Range Boxing Academy
Front Range Precast Concrete
Gail Heinzman & Associates
Garde Richard E
General Nutrition Inc.
Genomica Corporation
Geomega
Gifted Touch Massage
Gordon Jamie Skin Care St
Grease Monkey
Great Little Pie Co.
Great Trango Holding Inc
Greenco Financial Inc
Gremillion Surveying Co
Griff Advg & Pub Relation
Gritz Photography
Guild for Strl Integration
Guthrie Design Inc.
Hahn Co
Hain Celestial Group Inc
Hanna Herb Shop
Harman-leona
Healing Touch Chiropractic
Health Dynamics
Herbs Meats & Specialty
High Plains Construction
High Plains Ldscpg Irrigation
Highest Life Chiropractic
Home Guru
Horizon Custom Homes Inc
Hoshi Motors Inc
Huntington Arms LLP
I Witness Inc
IBM/Pennant Systems Inc
Icon Enterprises
In Clover Inc
Ingenue LLC
Insight Financial
Insurance Advisors
Insure-aid Claims Service
Intervention
Intuicom Incorporated
J a Sichel and Associates
Jane Crawford
JGBS Inc
Jinny S Market
JKH Mobility Services
John Sullivan
Jones & Donnelly Ditch Co
JSAT Center for Change
Juice Market
Justice System Assessment
Katheryn L Zeeb AIA
Kathleen E Moore Med LPC
Kathy Silbert Cmt Nmt
Kent Wilson CLU
KLM Inc
Kristin Lewis Architects
Kwik Kopy Printing
Lansing Design
Larson Engineering
Laura Coates Designs
Lawrence & Associates CPA
Lefflers Natural Food Shop
Leon L Evans MD
Leutwiler Financal Service
CU Library Mail Rm
Lifestyle Hair Studio
Lighthouse New Age Bookstore
Liquor Mart Inc
Lisa Kalfas
Living Design
Margery B Ginsberg Dr.
Mark Fitch DVM
Mark J Barnes DDS
Marpa Landsc & Associates
Marshall Information Svc
Martin Rubbiolo
Marx Interiors LLC
Mattress Firm
McDonalds of Boulder
Meadows Club
Medical Couriers Mgt Corp
Mesa Memorial Baptist Church
Michael Boone Associates
Michael's - Store 7010
Michaels G Redmond Law Office
Micro Analysis and Design
Mile High Chapter
Mizu-tech Inc
Mount Baldy Institute
Mountian Gemological Service
Mud-luscious Studio
Namo Buddha Seminar(inc)
Napro Biotherapeutics Inc
Neptune Mountaineering
Network Ram
Newcastle Investments
Newell Allen C Associates
North American Technology
North Boulder Animal Hospital
Norwest Bank/ Wells Fargo
Occidental Log Homes
Olympia Mogul Camps Inc
Online Marketing Letter
Optivideo Corporation
Out of Woods Furniture
Page Ii

Palladium Hair
Partnrship for Rsrce Cnsr
Pellmans Automotive Service
Peregrine Ventures Inc
Pharmion Corporation
Phoenix Mountain
Physician Executvs CCH
Pinebrook Water District
Pinpoint Solutions Inc
Pixel Kitchen Inc
Planetearthcom Inc
Polarity Center of Colo
Polarsoft Inc/Middleware
Printrak International
Programmed Solutions
Public Defenders Office
PVC Enterprises
Quality of Boulder
Rave Store 468
Reber Group Co
Rec Assoc
Renaissance Hair LLC
Response Management
Rick Baker & Associates
Ringmaker
Robbs Music Inc
Robert B Simeral
Rocky Mountain Anglers
Rocky Mountain Canine Acc
Rocky Mountain School Inc
Rocky Mtn Racket Specialists
Rodwin Architecture
RTS Properties
Salvaggios Italian Deli
Scandinavian Auto Service
CU School of Jounalism
Scientech Incorporated
Showtime Antiques Inc
Sickbert & Associates
Siemens Moore Process Aut
Signal Graphics Printing
Silver Wave Records
Sinclair Products Service
Skiing Company the
Sorenson Contracting
Spruce Confections
Spyder Actice Sportswear
SS Papadopulos & Assoc
St Clair & Greschler
Stafford Moving
Stellar Designs
Stephanie Stiehm Interiors
Stephen C Miller PC
Sterlings Studio
Sullivan Tom & Assoc
Summit Capital Management
Sunshine Sprinkler Instal
Sweeney Mining & Milling
Swiss Chalet
T G a F Inc
T&M Automotive
Taco Bell
Taproot Concepts Ltd
Tekton Software Inc
Telecmmnctons Opprtunities
Terry L Corzine Inc
The Lighthouse/Gunprk Deli
Thomas Turner
Tomato Travel
Trimax Inc
U of C Fed Credit Union
U of C-Speech Language
U of C/Space Science Inst
U S Capital Incorporated
Urban Development Co Llc
Urban Outfitters Inc
Vantage Medical/Mariner
Veritas Software Corp
Vickers 2626
Volunteer Management Asso
Walls Design Inc
Walnut Realty Inc
CU Wardenberg Health Center
Warehouse Sales Inc
Way of the Crane
Welness Trends Inc
Wendys Old Fashioned Hmbg
Westbrook David M Law office
Western Dialysis of Boulder
Western Foundation Inc
Westland Realty
Wilcox Courtney Cmt
William Kaiser Investment
Windholz Assoc/Hayashi
Windows on Rockies Ug
Wolff Lyon Architects
Xor Inc

Appendix VI: Copy of Survey Materials

A copy of the letter sent to companies informing them of their selection into the Boulder Valley Employee Study is included on the next page. Subsequent pages contain the survey cover letter, and a copy of the survey instrument given to employees.

CITY
OF
BOULDER
William R. Toor, Mayor

June 29, 2001

PERSON, TITLE
COMPANY
ADDRESS
CITY STATE, ZIP

Dear PERSON:

Your company has been randomly chosen to participate in the sixth implementation of a City of Boulder survey of Boulder Valley employees. This survey is conducted every other year to determine the transportation needs and behavior of those working in Boulder Valley.

The views of employees are considered vital in transportation planning involving work-related trips. Your company has been randomly chosen to participate in this survey. A small number of your employees will be asked to complete a short questionnaire.

A staff member from the City's Audit and Evaluation Division will be calling you shortly to discuss this important study. Thank you very much in advance for your participation.

Please call Doug Parker at (303) 441-3156 or e-mail him at parkerd@ci.boulder.co.us if you have any questions or concerns before we contact you.

Thank you.
Sincerely,

William R. Toor

William R. Toor
Mayor

P.O. Box 791 • Boulder, Colorado 80306 • (303) 441-3156

2001 Boulder Valley Employee Survey

Please take a few minutes to complete the following survey for the City of Boulder. All of your responses are completely confidential and will be reported in group form only.

Today's Date: _____/_____/ **01** **Company Name:** _____

WORK COMMUTE

1. How did you get to work **today**?

☐ 1. drove alone
☐ 2. drove with at least one other person:

with how many others? [_____]

how many under 16 years old? [_____]

☐ 3. multi-mode (e.g. car then bus, bike/bus, 2 buses)
☐ 4. walked
☐ 5. biked
☐ 6. rode the HOP, SKIP, JUMP, LEAP or BOUND bus
☐ 7. rode a local RTD bus
☐ 8. rode a regional or express bus
☐ 9. I worked at home
☐ 10. other, specify _____

2. About how far is your home from work?

miles

3. About what time did you leave for work today?

_____:_____ *AM / PM*

3a. How many stops did you make on your way to work? (Record zero if you made no stops)

stops

4. Did you come straight to work from home today?

☐ 1. no --> ***GO TO QUESTION #5***
☐ 2. yes

4a. About how many minutes did it take?

minutes

5. Yesterday (or the last day you worked), how many stops did you make on your way home?

stops

6. During a typical week, how many days do you commute to work in each of the ways listed below?

drive alone	[_____] days
carpool/vanpool	[_____] days
multi-mode	[_____] days
walk	[_____] days
bike	[_____] days
HOP, SKIP, JUMP, LEAP or BOUND bus	[_____] days
local RTD bus	[_____] days
regional or express bus	[_____] days
work at home	[_____] days
TOTAL	[_____] days

WORK DAY TRIPS

7. How many one-way trips did you make during your workday yesterday (or on the last day you worked), **not including your work commute?**

(Please include trips made for lunch, meetings or errands -- personal or work-related. A round trip counts as 2 one-way trips. For example, a round trip to and from lunch is 2 one-way trips. Each time you went to a different location is one trip. Record zero if no work day trips were taken besides your commute.)

trips

7a. If you took one or more trips, what was your primary method of travel used for these non-commute work day trips? (Check one only, please).

☐ 1. drove alone
☐ 2. drove with at least one person
☐ 3. multi-mode
☐ 4. walked
☐ 5. biked
☐ 6. rode the HOP, SKIP, JUMP, LEAP or BOUND
☐ 7. rode a local RTD bus
☐ 8. other, specify _____

8. Does your job require you to run errands away from the office?

☐ 1. no --> ***GO TO QUESTION #9***
☐ 2. yes

8a. If you run errands for your job, about how often are your required to do so?

☐ 1. several times a week
☐ 2. about once a week
☐ 3. about once every two weeks
☐ 4. about once a month
☐ 5. less often than once a month
☐ 6. other, specify _____

8b. If you run errands for your job, is there a work vehicle available to you or must you provide your own vehicle?

☐ 1. I must use my own car
☐ 2. I use an employer-provided vehicle
☐ 3. I use an employer-provided bicycle
☐ 4. other, please specify _____

_____

PARKING

9. When you drive to work, what type of parking space do you **usually** park in?

☐ 1. public lot or structure with a permit
☐ 2. private lot or parking space, no charge
☐ 3. private lot with charges
☐ 4. street with meter
☐ 5. residential street, no meter
☐ 6. other (specify) _____
☐ 7. I don't usually drive to work --> ***GO TO QUESTION #11***

10. How much do you estimate you will spend on employee parking for your work commute in the year 2001?

$ _____

TRANSIT

11. How far from your home is the nearest bus stop that you would use to ride to work?

☐ 1. less than 2 blocks
☐ 2. 2 - 5 blocks
☐ 3. 6 - 10 blocks
☐ 4. 11 - 15 blocks
☐ 5. more than 15 blocks
☐ 6. don't know

12. Do you have an Eco Pass, the annual pass which allows you to ride RTD buses and the Community Transit Network buses (SKIP, HOP, JUMP, etc) for no additional charge?

☐ 1. yes, through my employer
☐ 2. yes, through my neighborhood
☐ 3. yes, a CU Boulder student bus pass
☐ 4. yes, a CU Boulder faculty/staff Eco Pass
☐ 5. no

13. **Yesterday** (or the last weekday day you worked), how many one-way trips did you take by bus?

(Please include all bus trips -- those to and from work as well as bus trips for shopping, school, recreation, lunch or other purposes. A round trip counts as two one-way trips. Each time you went to a different location is one trip. ***(Record zero if no bus trips were taken yesterday and skip to Question #14.)***

_____ *trips*

13a. If you made at least one trip on the bus yesterday, how many of the one-way trips were for work and how many for other purposes?

for work _____
other purposes _____
TOTAL _____ *(this total should match question #13)*

13b. If you made at least one trip on the bus yesterday, how many of the one-way trips were on the following types of buses?

HOP bus _____
SKIP bus _____
JUMP bus _____
LEAP bus _____
BOUND bus _____
local RTD bus _____ (e.g.,201 thru 210)
Boulder County service routes _____ (e.g.,225, 227, LONG JUMP)
regional or express bus _____ (e.g.,B, D, G, etc.)
TOTAL _____
(this total should match question #13)

14. In the **last month**, have you ridden on any of the following Community Transit Network (CTN) buses? **(Check all that apply.)**

☐ 1. HOP bus
☐ 2. SKIP bus
☐ 3. JUMP bus
☐ 4. LEAP bus
☐ 5. BOUND bus

15. When you ride the bus to work, do you **usually** ride a local, Boulder County, or regional route?

☐ 1. HOP, SKIP, JUMP, LEAP or BOUND bus
☐ 2. local RTD bus (e.g.,201 thru 210)
☐ 3. Boulder County service routes (e.g.,225, 227, LONG JUMP)
☐ 4. regional or express bus (e.g.,B, D, G, etc.)
☐ 5. two or more types of buses
☐ 6. don't ride the bus to work at all --> ***GO TO QUESTION #15A***

15a. If you don't ride the bus, why don't you? **(Please check all that apply.)**

☐ my company doesn't offer Eco Passes
☐ no bus service to my company's location
☐ no bus service to my home
☐ bus takes too much time
☐ need my vehicle for errands during the work day
☐ need my vehicle before/after the work day to transport children or do errands
☐ other, please specify _____

_____

CHILD CARE

16. Are you responsible *at least some of the time* for transporting your child(ren) to and/or from school or child care?

☐ no --> ***GO TO QUESTION #19***
☐ yes

17. Did you take your child(ren) to school or child care today?

☐ 1. no
☐ 2. yes

18. How, if at all, does the need to transport children affect your choice of transportation for the work commute?

☐ 1. It doesn't affect my choice of transportation; I would make the same choices for my work commute as I do when I transport my children.
☐ 2. I might be more likely to use modes other than driving if I did not have to transport my children.
☐ 3. I would definitely be more likely to use modes other than driving if I did not have to transport my children.
☐ 4. Other: _____

EMPLOYMENT

19. Are you a full or part-time employee?

☐ 1. full-time
☐ 2. part-time

20. What category best describes your typical work schedule?

☐ 1. Monday through Friday, daytime
☐ 2. Monday through Friday, evenings
☐ 3. Weekends
☐ 4. Rotating/variable schedule
☐ 5. other, please specify _____

21. What category best describes your job?

☐ 1. retail/sales
☐ 2. service/restaurant/delivery
☐ 3. manufacturing/production/"high-tech"
☐ 4. office (professional, business, administrative support)
☐ 5. construction/trades/laborer
☐ 6. other, please specify _____

22. Employees telework (or telecommute) when they fulfill their job responsibilities at home by substituting work at home for work-related travel.

Do you ever telework?
(Include only full days at home when you do not travel to your work place.)

☐ 1. no --> ***GO TO QUESTION #23***
☐ 2. yes

22a. If yes, on average, how often have you teleworked in the last 3 months?
(Include only full days at home when you did not travel to your work place.)

☐ 1. less than once a month
☐ 2. one to three days a month
☐ 3. once a week
☐ 4. twice a week
☐ 5. three days a week or more

23. Is a car or other motor vehicle usually available to you for commuting to work? (If you are in a carpool and someone else drives, and you do not own a car, check "no".)

☐ 1. yes ☐ 2. no

GENERAL

These last few questions are about you and your family so that we can classify the responses to the survey. Once again, your responses are completely confidential and will be reported in group form only.

24. At present, how many motorized vehicles -- cars, vans or light trucks -- does your household have the use of?

motorized vehicles

25. Where do you live?

☐ 1. Boulder (within the city limits)
☐ 2. Uninc. Boulder County incl. mountain towns
☐ 3. Broomfield
☐ 4. Denver or suburbs
☐ 5. Erie
☐ 6. Gunbarrel/Niwot
☐ 7. Lafayette
☐ 8. Longmont
☐ 9 Louisville
☐ 10. Loveland/Fort Collins
☐ 11. Lyons
☐ 12. Weld County
☐ 13. Other, please specify _____

26. What is your zip code?

27. What is the nearest intersection to your home?

_____

28. Do you rent or own your housing unit?

☐ 1. rent ☐ 2. own

29. If you do not live in Boulder, would you live in Boulder if you could get a housing unit equivalent to the one you are presently residing in for the same price?

☐ 1. yes
☐ 2. no
☐ 3. don't know
☐ 4. I already live in Boulder

30. Which of the following categories contains your present age?

☐ 1. under 18
☐ 2. 18-24 years old
☐ 3. 25-34 years old
☐ 4. 35-44 years old
☐ 5. 45-54 years old
☐ 6. 55-64 years old
☐ 7. 65 or older

31. Please check the category that best describes the amount of education you have completed.

☐ 1. 0-11 years, no diploma
☐ 2. High school graduate
☐ 3. Some college, no degree
☐ 4. Associate degree
☐ 5. Bachelor's degree
☐ 6. Some graduate work, no graduate degree
☐ 7. Graduate degree

32. Please check the category which best describes your hourly pay rate at this job. (Please include the value of any tips or commissions your receive. If you are paid an annual salary, estimate your hourly rate by dividing by 2080 work hours per year.)

☐ 1. $7.00 per hour or less
☐ 2. $7.01 to $10.00 per hour
☐ 3. $10.01 to $12.00 per hour
☐ 4. $12.01 to $15.00 per hour
☐ 5. $15.01 to $20.00 per hour
☐ 6. $20.01 to $25.00 per hour
☐ 7. $25.01 to $50.00 per hour
☐ 8. over $50.00 per hour

33. Please check the category which best describes your current **annual household income** before taxes.

☐ 1. under $10,000 per year
☐ 2. $10,000 - $19,999
☐ 3. $20,000 - $29,999
☐ 4. $30,000 - $39,999
☐ 5. $40,000 to $49,999
☐ 6. $50,000 to $74,999
☐ 7. $75,000 to $99,999
☐ 8. $100,000 to $149,999
☐ 9. $150,000 or more

34. How many people currently live in your household? (Please include yourself.)

how many are 16 or older
how many are under 16
how many in total

35. Your gender:

☐ 1. male ☐ 2. female

Thank you for responding to this survey. Please fold the survey, staple or tape it and return it to your company's contact person.

If you have any questions or comments, please call the City of Boulder Audit and Evaluation Division (A&E) at 303-441-3156.